

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
INTRODUCTION			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 2 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

TABLE OF CONTENTS

1. SCOPE..... 3

2. NORMATIVE REFERENCES..... 3

3. REFERENCED PETROBRAS TECHNICAL SPECIFICATIONS 5

4. SYMBOLS AND ABBREVIATED TERMS..... 6

5. PIPING TAGGING SYSTEM..... 7

6. PIPING SPECIFICATION CODE RULE 9

7. SERVICES FOR TOPSIDE PIPING SPECS 9

8. LIST OF TOPSIDE PIPING SPECS 12

9. SERVICES FOR HULL PIPING SPECS 15

10. LIST OF HULL PIPING SPECS 18

11. PIPING MATERIAL SPECIFICATIONS 20

ANNEXES

A. Valve Datasheets

B. Pipes, Fittings and Accessories

C. Typical Arrangement for Drain, Vent and Instruments

D. Piping Material Selection for Corrosive HC and Produced Water (cancelled)

E. Flange Isolation Kit

F. Requirements for Piping internal Coating (cancelled)

G. Welding Requirements (cancelled)

H. Requirements for FRP Pipes and Fittings(cancelled)

J. Piping Weld Inspection (cancelled)

K. Pressure-Safety Valves and PSV Datasheets

L. Line Blanks

M. Utility and Service Couplings

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 3 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

1. SCOPE

1.1. This Guideline standardizes piping and valves materials for use in oil and gas exploration and production facilities.

1.2. This document specifies requirements for acquisition of: pipes, valves, fittings, flanges, gaskets bolts and nuts. Aspects of design, performance, materials, fabrication, testing, inspection, marking, storage, expedition and documentation are covered.

1.3. The designer is responsible for selecting the piping material specification (spec) taking into account its limitations, such as: service, pressure and temperature.

2. NORMATIVE REFERENCES

Note: The Standards referred herein shall be considered in their latest edition/revision.

API RP 14E - Recommended Practice for Design and Installation of offshore Production Platform Piping Systems.

API SPEC 5L - Specification for Line Pipe.

API SPEC 6A - Specification for Wellhead and Tree Equipment

ISO 14313 - Petroleum and Natural Gas Industries – Pipeline Transportation Systems-Pipeline Valves.

API STD 594 - Check Valves: Flanged, Lug, Wafer, and Butt-welding.

API STD 598 - Valve Inspection and Testing

API STD 599 - Metal Plug Valves-Flanged, Threaded and Welding Ends

ISO 10434 – Bolted Bonnet Steel Gate Valves for the petroleum, petrochemical and allied industries.

API STD 602 – Gate, Globe, and Check Valves for Sizes DN 100 (NPS 4) and Smaller for the Petroleum and Natural Gas Industries.

API STD 607 - Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats

API STD 609 - Butterfly Valves: Double Flanged, Lug and Wafer – Type, and Butt-welding Ends.

ASME B1.1 - Unified Inch Screw Threads (UN and UNR , and UNJ Thread Forms).

ASME B1.20.1 - Pipe Threads, General Purpose (Inch).

ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings Classes 25, 125 and 250.

ASME B16.5 - Pipe flanges and flanged fittings NPS 1/2 through NPS 24 Metric/Inch Standard

ASME B16.9 - Factory-made wrought butt welding fittings.

ASME B16.10 - Face-to-face and end-to-end dimensions of valves

ASME B16.11 - Forged Fittings, Socket-Welding and Threaded.

ASME B16.20 - Metallic gaskets for Pipe Flanges

ASME B16.21 - Nonmetallic Flat Gaskets for Pipe Flanges.

ASME B16.25 - Butt welding Ends.

ASME B16.28 - Wrought Steel Butt welding Short Radius Elbows and Returns.

ASME B16.34 - Valves – Flanged, threaded and welding end

ASME B16.47 - Large diameter Steel Flanges (NPS 26 through NPS 60). Metric/Inch Standard

ASME B18.2.2 – Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flang and Coupling Nuts (Inch Series)

ASME B31.3 - Process Piping.

ASME B31.4 - Pipeline Transportation Systems for Liquids and Slurries

ASME B31.8 - Gas Transmission and Distribution Piping Systems

ASME B36.10 - Welded and Seamless Wrought Steel Pipe.

ASME B36.19 - Stainless Steel Pipe

ASTM A105 - Standard Specification for Carbon Steel Forgings for Piping Applications.

ASTM A106 - Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service.

ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 4 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP INTERNAL
ASTM A182 - Standard Specification for Forged or Rolled Alloy-.Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High-Temperature or High Pressure Service and Other Special purpose Applications. ASTM A194 - Standard specification for carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or both. ASTM A216 - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding for High-Temperature Service. ASTM A234 - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service ASTM A312 - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes. ASTM A320 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for Low High-Temperature Service. ASTM A333 - Standard Specification for Seamless and Welded Steel Pipe for Low-Temperature Service and Other Applications with Required Notch Toughness ASTM A350 - Standard Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components. ASTM A351 - Standard Specification for Castings, Austenitic for Pressure-Containing Parts. ASTM A352 - Standard Specification for Steel Castings, Ferritic and Martensitic, for Pressure-Containing Parts, Suitable for Low-Temperature Service. ASTM A358 - Standard Specification for Electric-Fusion-Welded Austenitic Chromium-Nickel Stainless Steel Pipe for High-Temperature Service and General Applications ASTM A403 - Standard Specification for Wrought Austenitic Stainless Steel Piping Fittings. ASTM A420 - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service. ASTM A487 - Standard Specification for Steel Castings Suitable for Pressure Service. ASTM A522 - Standard Specification for Forged or Rolled 8 and 9% Nickel Alloy Steel Flanges, Fittings, Valves, and Parts for Low-Temperature Service ASTM A536 - Standard Specification for Ductile Iron Castings. ASTM A564 - Standard Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes. ASTM A671 - Standard Specification for Eletric-Fusion-Welded Steel Pipe for Atmospheric and Lower Temperatures. ASTM A694 - Standard Specification for Carbon and Alloy Steel Forgings for Pipe Flanges, Fittings, Valves, and Parts for High-Pressure Transmission Service. ASTM A733 - Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples ASTM A790 - Standard Specification for Seamless and Welded Ferritic/Austenitic Stainless Steel Pipe. ASTM A815 - Standard Specification for Wrought Ferritic, Ferritic/Austenitic, and Martensitic Stainless Steel Piping Fittings. ASTM A928 - Standard Specification for Ferritic/Austenitic (Duplex) Stainless Steel Pipe Electric Fusion Welded with Addition of Filler Metal ASTM A995 - Standard Specification for Castings, Austenitic-Ferritic (Duplex) Stainless Steel, for Pressure-Containing Parts ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings. ASTM B366 - Standard Specification for Factory-Made Wrought Nickel and Nickel Alloy Fittings ASTM B444 - Standard Specification for Nickel-Chromium-Molybdenum-Niobium Alloys and Nickel-Chromium-Molybdenum-Silicon Alloy Pipe and Tube ASTM B564 - Standard Specification for Nickel Alloy Forgings ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications. ASTM D1784 - Standard Classification System and Basis for Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120. ASTM D2467 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80. ASTM D3567 - Standard Practice for Determining Dimensions of Fiberglass (Glass-Fiber-Reinforced Thermosetting Resin) Pipe and Fittings ASTM D4024 - Standard Specification for Machine Made "Fiberglass" (Glass-Fiber-Reinforced Thermosetting Resin) Flanges ASTM F1173 - Standard Specification for Thermosetting Resin Fiberglass Pipe Systems to be used for Marine Applications ASTM F1387 - Standard Specification for Performance of Piping and Tubing Mechanically Attached Fittings ASTM F439 - Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.				

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 5 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP INTERNAL
BSI BS 1873 – Specification for Steel Globe and Globe Stop and Check Valves (flanged and butt-welding ends) for the Petroleum, Petrochemical and Allied Industries. BSI BS 3799 – Specification for Steel Pipe Fittings, Screwed and Socket-Welding for the Petroleum Industry. BSI BS EN 13789 - Industrial valves – Cast iron globe valves BSI BS EN ISO 17292 – Metal ball valves for petroleum, petrochemical and allied industries BSI BS EN ISO 15761 Steel gate, globe and check valves for sizes DN 100 and smaller, for the petroleum and natural gas industries. EEMUA 144 - 90/10 Copper Nickel Alloy Piping for Offshore Applications. Specification: Tubes Seamless and Welded. EEMUA 145 - 90/10 Copper Nickel Alloy Piping for Offshore Applications. Specification: Flanges Composite and Solid. EEMUA 146 - 90/10 Copper Nickel Alloy Piping for Offshore Applications. Specification: Fittings. IMO A 753(18) – International Maritime Organization – Resolution A 753(18). ISO 3834-2 – Quality requirements for fusion welding of metallic materials-part 2: comprehensive quality requirements. ISO 15156 - Petroleum and natural gas industries: Materials for use in H2S – containing environments in oil and gas production. ISO 14692- Petroleum and natural gas industries: Glass-reinforced plastic (GRP) piping. ISO 17292 – Metal ball valves for petroleum, petrochemical and allied industries. ISO 21457- Petroleum, petrochemical and natural gas industries – Material selection and corrosion control for oil and gas production systems. ISO 27509- Petroleum and natural gas industries: Compact Flanged connections with IX seal ring (Edition 2 , 2020). MSS SP-6 – Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings. MSS SP-70 – Cast Iron Gate Valves, Flanged and Threaded Ends. MSS SP-71 – Gray Iron Swing Check Valves, Flanged and Threaded Ends. MSS SP-72 – Ball Valves with Flanged or Butt-Welding Ends for General Service. MSS SP-75 – High-Strength, Wrought, Butt-Welding Fittings. MSS SP-80 – Bronze Gate, Globe, Angle and Check Valves. MSS SP-83 – Class 3000 and 6000 Pipe Unions, Socket Welding and Threaded (Carbon Steel, Alloy Steel, Stainless Steel, and Nickel Alloys) MSS SP-88 – Diaphragm Valves. MSS SP-95 – Swage (d) Nipples and Bull Plugs. MSS SP-97 – Integrally Reinforced Forged Branch Outlet Fittings – Socket Welding, Threaded, and Buttwelding Ends. NBR 15827 - Industrial Valves for Installations of Exploration, Production, Refining and Transport of Petroleum Products - Requirements for Design and Prototype Test. NORSOK M-001 – Materials Selection				
3. REFERENCED PETROBRAS TECHNICAL SPECIFICATIONS The technical specifications below are mandatory for all specs: I-ET-3010.2Q-1200-200-P4X-005 - MINIMUM REQUIREMENTS FOR PIPING MECHANICAL DESIGN AND LAYOUT. I-ET-3010.2Q-1200-200-P4X-006 - REQUIREMENTS FOR PIPING FLEXIBILITY AND STRESS ANALYSIS I-ET-3010.00-1200-200-P4X-003 - DESIGN, CONSTRUCTION AND ASSEMBLY OF FRP PIPING I-ET-3010.2Q-1200-200-P4X-004 - REQUIREMENTS FOR PIPING SUPPORT I-ET-3010.00-1200-200-P4X-005 - SUPPLEMENTARY REQUIREMENTS FOR DSS AND SDSS UNDER CATHODIC PROTECTION I-ET-3010.00-1200-200-P4X-115 - REQUIREMENTS FOR PIPING FABRICATION AND COMMISSIONING I-ET-3010.00-1200-200-P4X-116 - REQUIREMENTS FOR BOLTED JOINTS ASSEMBLY AND MANAGEMENT I-ET-3010.00-1200-295-P4X-001 - REQUIREMENTS FOR PIG LAUNCHER AND RECEIVER DESIGN I-ET-3010.00-1200-800-P4X-015 - REQUIREMENTS FOR TUBING AND FITTING (ALIGNED TO IOGP-JIP33 S-716) I-ET-3010.00-1200-955-P4X-001 – WELDING I-ET-3010.00-1200-955-P4X-002 - REQUIREMENTS FOR WELDING INSPECTION I-ET-3010.00-1200-956-P4X-002 - GENERAL PAINTING I-ET-3010.00-1200-956-P4X-003 - THERMAL SPRAY COATING APPLICATION OF ALUMINUM				

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 6 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

4. SYMBOLS AND ABBREVIATED TERMS

For the purposes of this document, the following symbols and abbreviated terms apply:

AISI American Iron and Steel Institute

APIAmerican Petroleum Institute

ASME American Society of Mechanical Engineering

ASTM American Society For Testing And Materials

BE Beveled Ends

BF Butt Strap

BLE Beveled Large Ends.

BS Bell Spigot

CL Class

CPVC Chlorinated Polyvinyl Chloride

Cr Chrome

CS Carbon Steel

CuNi Copper-Nickel

DSS Duplex Stainless Steel

EEMUA Engineering Equipment and Materials Users Association

EJ Elastic Joint

FLG Flange

FF Flat Face

FRP Fiber reinforced plastic

FCAP Capilar Union Female

FTHD Threaded Female

GALV Galvanized

GR Grade

GRP Glass Fiber Reinforced Plastic

HC Half Coupling

HEX Hexagonal

IMO International Maritime Association

IN Inch

LTCS Low Temperature Carbon Steel

MAX Maximum

MCap Capillary Union Male

MSS Manufacturers Standardization Society of the Valve and Fittings Industry

MTHD Threaded Male

NACE National Association of Corrosion Engineers

NPT National Pipe Thread (Thread ASME B1.20.1)

NSFHT National Standard Fire Hose Thread (Thread)

Org coat Organic Coated

PBE Plain Both Ends

PE Plain Ends

PSE Plain Short Ends.

PSIPounds per square inch

PTFE Polytetrafluoroethylene

PVC Polyvinyl Chloride

RF Raised Face

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 7 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
RJ Rigid Joint RTEE Reduction Tee RTJ Ring Type Joint SCH Schedule SDL Saddle SDSS Super duplex Stainless Steel SDV Shut Down Valve SML Seamless SOC Sockolet SPEC Piping Material Specification SS Stainless Steel STD Standard SWSocket Weld TBE Threaded Both Ends TEE Tee THD Threaded UNS Unified Numbering System VAG Needle Valve VAGI Instrumentation Needle Valve VAX Axial Valve VBO Butterfly Valve VDE Double Ball valve VDI Diaphragm Valve VES Ball Valve VESI Instrumentation Ball Valve VGA Gate Valve VGL Globe Valve VMA Plug valve VPVC Plastic valve VRE Check Valve XS Extra Strong XXS Double Extra Strong WLD Welded WN Weld Neck WOL Weldolet WPS Welding Procedure Specification WPQR Welding Procedure Qualification Record 5. PIPING TAGGING SYSTEM 5.1. GENERAL A-B-C-D-E A – Nominal Pipe Size Non-Integer Nominal Pipe Sizes shall be written as Fractions using a dash (“–”) to separate the integer part from the fraction, if necessary. Example: 1/2, 3/4, 1-1/2, 2-1/2.			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 8 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
The number/fraction shall be followed by the double prime symbol (") representative of inch unit, never two (') prime symbols. The sequential numbering need not be modified for diameter changes in the same line. B – Service Symbols (as listed in Item 5) C – Piping Material Specification Code D – Sequential Numbering of Line Shall consist of sequential number containing exactly 4 digits. The sequential numbering system shall be unique for each service. For example: 1/2"-P-B10-0010 (P-0010) and 8"-P-B14-0010 (P-0010) is not allowed. For example: 6"-P-B10-0010 (P-0010) and 8"-P-B10-0010 (P-0010) is allowed within the same line. E – Insulation The most commonly used insulations are listed below: - PP – Personal Protection - HC – Heat Conservation - CC – Cold Conservation - NI – Not Insulated (Absence of insulation shall always be represented by "NI") - ET – Electrical Trace - FP60 – Fire Protection 60 minutes Notes: Piperun tag shall not contain any spaces between characters. Other types of insulation can also be applied. EXAMPLE OF PIPING TAG 1–1/2"–P–B10–0010–HC Nominal Pipe Size: 1 1/2 inch Service: P – Process Piping Material Specification: B10 Sequential Numbering: 0010 Insulation: Heat Conservation PIPELINE TAGGING FOR 3D MODELLING B–D For 3D modelling, where Pipeline tagging is also required, it shall consist only of Service and sequential. Additional information regarding nominal pipe size, specification and insulation shall be associated with the piperun. Example of pipeline tag:			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 9 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

P-0010

Service: Process (non-corrosive Hydrocarbon)

Sequential Numbering: 0010

6. PIPING SPECIFICATION CODE RULE

Table 6-1- SPEC CODE RULE FOR PIPING

SPEC CODE RULE: XYZ			
Material	Code YY	Pressure Class or Type	Code X
Carbon Steel API 5L, 1,6mm	1	125	A
Stainless Steel 316/316L	3	150	B
Carbon Steel API 5L, 1,6mm	4	300	C
Carbon Steel API 5L, 3,2mm	5	600	E
Low Temperature Carbon Steel ASTM A333 Gr6 e ASTM A671 CC60, 1,6mm	6	900	F
Cu-Ni 90/10	7	1500	G
Galvanized Carbon Steel API 5L	8	2500	H
Carbon Steel API 5L, 3,2mm	9	10000	J
Carbon Steel API 5L, 1,6mm	10	Gasket Mechanical Coupling (GMC)	R
Organic Coated Carbon Steel API 5L	11	Mechanically Attached Fittings (MAF)	S
Super Duplex Steel UNS S32760	12	Tubing	T
Organic Coated Carbon Steel API 5L	14		
Duplex Steel UNS S31803	16	Other characteristics	Code Z
Carbon Steel API 5L, 6,4mm	17	Reduced Pressure	R
Organic Coated Carbon Steel API 5L	18	ASME B31.4 or B31.8	P
Low Temperature Carbon Steel ASTM A333 Gr6 e ASTM A671 CC60, 3,2mm	19	Hull Piping Spec.	H
PVC	20	Option lower pressure	A
CPVC	21	Option higher pressure	B
FRP 90°C 10 bar	22		
FRP 90°C 16 bar	23		
FRP 120°C 16 bar	24		
RPVC	25		
FRP 120°C 16 bar	26		
FRP 85°C 16 bar	27		
Inconel 625 clad Carbon Steel API 5L	30		
Alloy Steel 9Ni ASTM A 333 Gr8	31		
Inconel 625 clad Alloy Steel 3 1/2Ni ASTM A 333 Gr3	32		
Inconel clad Alloy Steel Aço Liga 9Ni ASTM A 333 Gr8	33		
Alloy P22	34		
Inconel 625 UNS N06625	40		
Titanium Gr. 2 ASTM B861 Gr. 2	42		
Stainless Steel 310H	50		
Stainless Steel 316/316L	51		
Carbon Steel API 5L, 1,6mm	52		
6% Molybdenum	60		

7. SERVICES FOR TOPSIDE PIPING SPECS

Table 7-1- Codes for Topsides Services SPECS.

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 10 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

Code	Service	Specs
ADW	Aerated Dilution Water	B11, B23, C11, C23, C30
AM	Amine	B10, B16, B3, B9, C10, C16, E10, E16, E3
BG	Inert Gas	B1, B3, B10, C10, E10, F10, G10, R3B, R3C, R9B, R9C, S3B, S3C, S9B, S9C
CHW	Chilled Water	B1, B10, B20, R9B, R9C, S9B, S9C
CI	Chemical Injection (non-corrosive)	B1, B10, C10, E10, F10, G10, S9B, S9C, T12, T3, T3A, T3B, T60A, T60B
CI2	DBNPA Biocide	B27, B27R
CN	Sodium Hypochlorite	B14, B20, B27, B27R
CNI	Corrosive Chemical Injection (Except Sodium Hypochlorite)	B3, B16, C3, C16, E3, F3, G3, H12, H16, H3, J12, S3B, S3C, T12, T3, T3A, T3B, T60A, T60B
D	Diesel	B10, B3, C10, C3, G10, H10, H12, H30
DA	Open Drain	B14, B22, B23, B25, B9, R9B, R9C, S9B, S9C
DAL	Open Drain from Laboratory	B3
DF	Closed Drain (Non-Corrosive hydrocarbon)	B1, B10
DFC	Closed Drain (Corrosive Hydrocarbon)	B9
DO	Carbon Dioxide (DRY)	C3, E3, C8, E8
DOH	Carbon Dioxide w/ Hydrocarbon	J12P, J31, J31P
DW	Distilled Water	B3, B23, R3B, R3C, S3B, S3C
F	Safety System and Flare	B10, B12, B16, B19, B3, B30, B50, B6, B9, C6, C19, G3, H12, H3, H40, J40, T60A
FG	Fuel Gas	B10, B19, B3, B6, C10, E10, E3, E6, F10, F3, G3
FL	Foam Line	B1, B10, B7, B7R
FLC	Concentrated Foam	B3
FP	Production and Drilling Fluid	B5, C5, E5, F5, G5, H5
FW	Fire Water (Sea Water)	B24, B7, B7R, S7
G	Glycol	B10, B3, B6, C10, C6, E10, E3, E6, F10, F3, G10, G3, G6, H6
GL	Refrigerated Liquified Petroleum Gases in Low Temperature	B6, C6, E6, F6, G6
H	Hydraulic Fluid	B3, C3, E3, F3, G3, H3, S3B, S3C
HF	Hot Fluid	B4, C4
HWP	Process Heating Water	B4, C4, E4
HWU	Utility Heating Water	B21, B22, B23, B4
IA	Instrumentation Air	B3, G3, R3B, R3C, S3B, S3C



TECHNICAL SPECIFICATION

Nº: I-ET-3010.2Q-1200-200-P4X-001

REV. B

MARLIM LESTE E SUL

SHEET: 11 OF 20

TITLE:

PIPING SPECIFICATION FOR TOPSIDE

ESUP

INTERNAL

Code	Service	Specs
IG	Instrumentation Gas	B3
IGN	Ignition Line	B3
IN	Instrumentation Nitrogen	B3, R3B, R3C, S3B, S3C
IW	De-Aerated Sea Water Injection	B1, B10, B14, B22, B23, B30, C10, C14, C30, E10, E14, F10, F14, G10, G14, H12, H30
IWC	Aerated Sea Water Injection	B14, B22, B23
JF	Helicopter Refueling	B3
OL	Lubricating Oil	B10, R9B, R9C, S9B, S9C
P	Process (non-corrosive hydrocarbon)	B10, B3, B6, C10, C10P, C6, E10, E3, E6, E9, F10, F10P, F3, F6, G10, G10P, G16, G16P, G3, G6, H10, H10P, H10R, H12, H12P, H16, H3, H31, H40, H6, J10, J12, J12P, J31, J31P, J40, J40P
PC	Process (Corrosive Hydrocarbon)	B11, B12, B16, B17, B19, B3, B30, B9, C11, C12, C16, C19, C30, C9, E16, E17, E19, E3, E30, E32, E9, F16, F3, F30, F32, G12, G12P, G16, G16P, G19, G3, H12, H12P, H16, H3, H30, H30P, H31, H33, H40, J12, J12P, J40, J40P
PCW	Produced water	B11, B12, B16, B25, B26, B30, C11, C12, C16, C30, E11, F11, G11, H11
PW	Potable Water	B20, B3, R3B, R3C, S3B, S3C
PWH	Hot Fresh Water	B21, B22, B23, B3, S3B, S3C
RF	Refrigerant Fluid	B10, C10
S	Steam	B4, C4, E4, E34, F4, G4, S9B, S9C
SA	Service Air	B1, B10, C10, R9B, R9C, S9B, S9C
SC	Steam Condensate	B4, C4, E4, F4, G4, S9B, S9C
SFW	Fire Water (Fresh Water)	A4
SN	Start-up Nitrogen	B1, B10, C10, R9B, R9C, S9B, S9C
STA	Start-up Air	C10H
SW	Sea water	B14, B22, B23, B7R, C14, C23
W	Industrial water	B1, B10, B20, B22, B23, B28, B3, C10, C28, E10, F10, G10, H10, R9B, R9C, S9B, S9C
WW	Black	B3

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001		REV. B		
	MARLIM LESTE E SUL					SHEET: 12 OF 20	
	TITLE: PIPING SPECIFICATION FOR TOPSIDE					ESUP	
						INTERNAL	

8. LIST OF TOPSIDE PIPING SPECS

Table 8-1- Topside Pipe SPECS

SPEC	REV	PRESSURE CLASS	CORROSION ALLOWANCE (mm)	MIN TEMP (°C)	MAX TEMP (°C)	PIPE MATERIAL	SERVICE CODE
A4	S	125	1.6 mm	65	90	Carbon Steel	SFW
B1	O	150	1.6 mm	0	100	Carbon Steel	BG CHW CI DF FL IW SA SN W
B3	K	150	-	-100	260	SS 316/316L	AM BG CNI D DAL DW F FG FLC G H IA IG IGN IN JF P PC PW PWH W WW
B4	L	150	1.6 mm	0	300	Carbon Steel	HF HWP HWU S SC
B5	J	150	3.2 mm	0	90	Carbon Steel	FP
B6	N	150	1.6 mm	-46	240	Low Temp CS	F FG G GL P
B7	I	20 bar	-	0	75	Copper-Nickel	FL FW
B9	O	150	3.2 mm	-29	240	Carbon Steel	AM DA DFC F PC
B10	N	150	1.6 mm	-29	210	Carbon Steel	AM BG CHW CI D DF F FG FL G IW OL P SA RF SN W
B11	F	150	-	0	150	Organic Coat CS	ADW PC PCW
B12	L	150	-	0	140	Super Duplex	F PC PCW
B14	H	150	-	0	70	Organic Coat CS	CN DA IW IWC SW
B16	E	150	-	-46	130	Duplex	AM CNI F PC PCW
B17	E	150	6.4 mm	0	120	Carbon Steel	PC
B19	E	150	3.2 mm	-46	200	Low Temp CS	F FG PC
B20	E	-	-	23	40	PVC	CHW CN PW W
B21	C	-	-	27	80	CPVC	HWU PWH
B22	F	10 bar	-	15	90	FRP	DA HWU IW IWC PWH SW W
B23	G	16 bar	-	5	90	FRP	ADW DA DW HWU IW IWC PWH SW W
B24	E	16 bar	-	5	90	FRP	FW
B25	F	16 bar	-	20	60	RPVC	DA PCW
B26	A	16 bar	-	5	110	FRP	PCW
B27	A	16 bar	-	5	85	FRP	CI2 CN
B27R	A	12 bar	-	15	85	FRP	CI2 CN
B28	A	20 bar	-	5	90	FRP	W
B30	C	150	-	-20	240	CS Inconel Clad.	F IW PC PCW
B50	O	150	-	38	538	SS 310H	F
B7R	L	16 bar	-	0	75	Copper-Nickel	FL FW SW
C3	H	300	-	0	150	SS 316/316L	D H
C4	E	300	1.6 mm	0	350	Carbon Steel	HF HWP S SC
C5	D	300	3.2 mm	0	90	Carbon Steel	FP
C6	L	300	1.6 mm	-46	200	Low Temp CS	F G GL P

		TECHNICAL SPECIFICATION				Nº: I-ET-3010.2Q-1200-200-P4X-001		REV. B
		MARLIM LESTE E SUL						SHEET: 13 OF 20
		TITLE: PIPING SPECIFICATION FOR TOPSIDE						ESUP
								INTERNAL
SPEC	REV	PRESSURE CLASS	CORROSION ALLOWANCE (mm)	MIN TEMP (°C)	MAX TEMP (°C)	PIPE MATERIAL	SERVICE CODE	
C8	F	300	-	-18	54	Galv. CS	DO	
C9	M	300	3.2 mm	0	240	Carbon Steel	PC	
C10	L	300	1.6 mm	0	240	Carbon Steel	AM BG CI D FG G IW P RF SA SN W	
C10P	B	300	1.6 mm	0	110	Carbon Steel	P	
C11	E	300	-	0	150	Organic Coat CS	ADW PC PCW	
C12	L	300	-	-50	140	Super Duplex	PC PCW	
C14	F	300	-	0	90	Organic Coat CS	IW SW	
C16	F	300	-	-46	150	Duplex	AM CNI PC PCW	
C19	O	300	3.2 mm	-46	200	Low Temp CS	F PC	
C23	O	25 bar	-	5	90	FRP	ADW SW	
C28	A	25 bar	-	5	90	FRP	W	
C30	E	300	-	-20	200	CS Inconel Clad.	ADW IW PC PCW	
C32		300	-	-50	200	3.5Ni InconelClad	PC	
E3	I	600	-	-100	200	SS 316/316L	AM CNI D DO FG G H P PC	
E4	D	600	1.6 mm	0	350	Carbon Steel	HWP S SC	
E5	D	600	3.2 mm	0	90	Carbon Steel	FP	
E6	L	600	1.6 mm	-46	180	Low Temp CS	FG G GL P	
E8	G	600	-	-18	54	Galv. CS	DO	
E9	L	600	3.2 mm	0	150	Carbon Steel	P PC	
E10	I	600	1.6 mm	-20	210	Carbon Steel	AM BG CI FG G IW P W	
E11	D	600	-	0	150	Organic Coat CS	PCW	
E14	E	600	-	0	70	Organic Coat CS	IW	
E16	F	600	-	-46	130	Duplex	AM PC	
E17	C	600	6.4 mm	0	90	Carbon Steel	PC	
E19	O	600	3.2 mm	-46	325	Low Temp CS	PC	
E30	E	600	-	-20	200	CS Inconel Clad.	PC	
E32	E	600	-	-55	330	3.5Ni InconelClad	PC	
E34	A	600	1.6 mm	0	450	P22 Alloy Steel	S	
F3	H	900	-	-100	325	SS 316/316L	CNI D FG G H P PC	
F4	D	900	1.6 mm	0	350	Carbon Steel	S SC	
F5	C	900	3.2 mm	0	90	Carbon Steel	FP	
F6	K	900	1.6 mm	-46	320	Low Temp CS	GL P	
F10	I	900	1.6 mm	-29	200	Carbon Steel	BG CI FG G IW P W	
F10P	A	900	1.6 mm	-20	120	Carbon Steel	P	
F11	B	900	-	0	90	Organic Coat CS	PCW	
F14	D	900	-	0	70	Organic Coat CS	IW	

 PETROBRAS		TECHNICAL SPECIFICATION				Nº: I-ET-3010.2Q-1200-200-P4X-001		REV. B
		MARLIM LESTE E SUL						SHEET: 14 OF 20
		TITLE: PIPING SPECIFICATION FOR TOPSIDE						ESUP
								INTERNAL
SPEC	REV	PRESSURE CLASS	CORROSION ALLOWANCE (mm)	MIN TEMP (°C)	MAX TEMP (°C)	PIPE MATERIAL	SERVICE CODE	
F16	B	900	-	-46	70	Duplex	PC	
F30	B	900	-	0	190	CS Inconel Clad.	PC	
F32	C	900	-	-55	320	3.5Ni InconelClad	PC	
G3	K	1500	-	-100	210	SS 316/316L	CNI D F FG G H IA P PC	
G4	C	1500	1.6 mm	0	350	Carbon Steel	S SC	
G5	C	1500	3.2 mm	0	90	Carbon Steel	FP	
G6	H	1500	1.6 mm	-46	160	Low Temp CS	G GL P	
G10	H	1500	1.6 mm	-20	200	Carbon Steel	BG CI D G IW P W	
G10P	H	1500	1.6 mm	0	110	Carbon Steel	P	
G11	F	1500	-	0	90	Organic Coat CS	PCW	
G12	F	1500	-	-46	90	Super Duplex	PC	
G12P	D	1500	-	-46	90	Super Duplex	PC	
G14	D	1500	-	0	70	Organic Coat CS	IW	
G16	C	1500	-	-46	200	Duplex	P PC	
G16P	C	1500	-	-46	130	Duplex	P PC	
G19	C	1500	3.2 mm	-46	70	Low Temp CS	PC	
G30		1500	-	0	200	CS Inconel Clad.	PC	
H3	H	2500	-	-100	150	SS 316/316L	CNI F H P PC	
H5	D	2500	3.2 mm	0	90	Carbon Steel	FP	
H6	D	2500	1.6 mm	-46	180	Low Temp CS	G P	
H10	I	2500	1.6 mm	-20	175	Carbon Steel	D P W	
H10P	G	2500	1.6 mm	0	110	Carbon Steel	P	
H10R	G	2500	1.6 mm	-29	150	Carbon Steel	P	
H11	E	2500	-	0	90	Organic Coat CS	PCW	
H12	C	2500	-	-50	190	Super Duplex	CNI D F IW P PC	
H12P	B	2500	-	-50	115	Super Duplex	P PC	
H16	C	2500	-	-50	130	Duplex	CNI P PC	
H30	G	2500	-	-20	120	CS Inconel Clad.	D IW PC	
H30P	F	2500	-	-20	120	CS Inconel Clad.	PC	
H31	B	2500	1.6 mm	-100	93	9Ni	P PC	
H33	B	2500	1.6 mm	-50	93	9Ni Inconel Clad.	PC	
H40		2500		-100	150	Inconel	F P PC	
J10		10000	1.6 mm	0	204	Carbon Steel	P	
J12	E	10000	-	-50	120	Super Duplex	CNI P PC	
J12P	A	10000	-	-50	120	Super Duplex	DOH P PC	
J31	F	10000	1.6 mm	-100	93	9Ni	DOH P	

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 15 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

SPEC	REV	PRESSURE CLASS	CORROSION ALLOWANCE (mm)	MIN TEMP (°C)	MAX TEMP (°C)	PIPE MATERIAL	SERVICE CODE
J31P	F	10000	1.6 mm	-100	93	9Ni	DOH P
J40	D	10000	-	-100	155	Inconel	F P PC
J40P	0	10000	-	-100	155	Inconel	P PC
R3B	0	150	-	0	60	SS316/316L	BG DW IA IN PW
R3C	0	300	-	0	60	SS316/316L	BG DW IA IN PW
R9B	0	150	1.6 mm	0	70	Carbon Steel	BG CHW DA OL SA SN W
R9C	0	300	1.6 mm	0	70	Carbon Steel	BG CHW DA OL SA SN W
S3B	0	150	-	0	60	SS316/316L	BG CNI DW H IA IN PW PWH
S3C	0	300	-	0	60	SS316/316L	BG CNI DW H IA IN PW PWH
S7	A	20 bar	-	0	75	Copper-Nickel	FW
S9B	0	150	1.6 mm	0	100	Carbon Steel	BG CHW CI DA OL S SA SC SN W
S9C	0	300	1.6 mm	0	100	Carbon Steel	BG CHW CI DA OL S SA SC SN W
T3A		-	-	0	60	Tubing SS316/316L	CI CNI
T3B		-	-	0	60	Tubing SS316/316L	CI CNI
T12	0	.-	-	0	90	Tubing SuperDuplex	CI CNI
T60A		-	-	0	60	Tubing 6Mo	CI CNI F
T60B		-	-	0	60	Tubing 6Mo	CI CNI

9. SERVICES FOR HULL PIPING SPECS

Table 9-1-Codes for Hull Services Piping SPECS

CODE	SERVICE	LOCATION	SPECIFICATION
AO	Slop discharge system	Balance line	B16H
		Dropline inside Slop Tanks	B18H
		All system	B14H
ADW	Aerated Dilution Water	All system	C11H
AM	Amine		C16H
BG	Inert Gas	Other Locations	B11H; B10H, C10H
		Penetration pieces on maindeck	B18H
		Pipe stack Stripping	B3H
BR	Bilge	All system	B14H
		Bottom Hull Penetration pieces up to intermediate valve.	B18H
BWG	Ballast and General Service	Other location	B14H

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 16 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

CODE	SERVICE	LOCATION	SPECIFICATION
		Spool between sea-chests and sea valves	B18H
BWH	Ballast	Lines inside Ballast Tanks(Double Sides, Double Bottom and FWD Peak Tanks	B23H
		Other Locations	B14H, C14H
CHW	Chilled Water	Accommodations	B20H, B10H
		Others	B10H
CN	Hypochlorite Injection	All system	B20H
		If required by classification society	B14H
		Sea chest line	B18H
CNI	Corrosive chemical injection (Except Sodium Hypochlorite)	All system	B3H, B18H, C16H
CV	Cargo and Slop Tanks Closed Venting	All system	B14H, B10H, B3H
D	Diesel Oil	All system	B3H, C3H
		Well service system	B10H
DA	Open Drain	Deck scupper	B18H
		Hellideck drainage	B14H
		Oil Coaming Drain Lines	B10H
		All system	B14H, B22H
DF	Non corrosive Closed Drain	All System (in the hull)	B10H
DFC	Corrosive Closed Drain	Side Shell and Bottom Hull Penetration pieces up to intermediate valve of deck seal discharge and inert gas generator scrubber discharge	B18H
		All System (in the hull)	B9H
DO	Carbon Dioxide	All system	C8H, E8H
DTH	Draught, Trim and Heel Indication System	Bottom Hull Penetration pieces up to intermediate valve.	B18H
		All system	B3H, B7H
DW	Distilled water	All system	B3H
EG	Exhaust Gas	All system	A3H
FG	Fuel Gas	All system	B10H, B3H
FL	Diluted Foam Line	Concentrated + sea water	B7H
FLC	Concentrated Foam Line	Concentrated	B3H
FW	Fire Water (Aerated sea water)	All system	B7H
		Overboard line (only for overboard lines inside the hull)	B14H

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 17 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

CODE	SERVICE	LOCATION	SPECIFICATION
GW	Grey Water	Accommodations	B20H
		Other Lines	B3H
		Side Shell and Bottom Hull Penetration pieces up to intermediate valve.	B18H
H	Hydraulic Fluid	All system	B3H, C3H, E3H, F3H, G16H, H16H
		Hydraulic Valves Actuating and return lines	T3H
		Hydraulic actuation for all pumps in the Cargo Pumps Package	MKS
HBG	Hydrocarbon Blanket Gas		B3H
HWP	Process Heating Water		C4H
HWU	Utility Heating Water		B22H
IA	Instrumentation Air	All system	B3H
IW	De-Aerated Sea Water Injection	All system	B22H
JF	Helicopter Refueling	All system	B3H
OL	Lubricating Oil	All system	B10H
PC	Process (Corrosive Hydrocarbon)	All system	B16H, C11H, C12H, C16H
PCG	Cargo	All system	B14H, B15H, C14H , C15H
		Adjacent to Accomodation	B16H
		Cargo Pumps Header	B10H, C10H
PCW	Produced Water	Balance Line and Side Shell Penetration pieces up to intermediate valve.	B18H, C11H, C12H, C16H
		All system	B11H, B26H
PLD	Loading	All system	B10H, C10H
PW	Potable Water	Accommodation	B20H
		Other Lines	B3H
PWH	Hot Fresh Water	Accommodation	B21H, B22H
		Other Lines	B3H
SA	Service Air	spool piece of sea chest	B18H
	Service Air	All system	B3H
SN	Start Up Nitrogen	All system	B10H
SP	Vent and tank sounding	Other tanks venting	B8H
		Diesel tanks venting	B10H
		Spool between sea-chests and sea valves	B18H
		Diesel and Fresh Water tanks sounding	B3H

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 18 OF 20
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

CODE	SERVICE	LOCATION	SPECIFICATION
		Other tanks and Void spaces sounding	B8H
STA	Starting Air	All system	C10H
		Inert Gas System Blower	B10H
SW	Sea Water	All system	B14H
		Crossovers of Main Engine Room and Pump Room and its branches up to first flange, Side Shell and Bottom Hull Penetration pieces up to intermediate valve.	B18H
		Scrubber overboard	B22H, B23H, B7H, C23H
TC	Tank Cleaning	All system	B18H, C14H
TL	Tank level indication	All system	B3H
TR	Tank Recirculation	All system	B14H, B15H
		Transference Header between Cargo Pumps Header connection and Offloading Header	B10H, C10H, C14H, C15H
W	Fresh Water	Fresh Water Central Cooling	B10H
		Fresh Water Hydrophore - Accommodation	B20H, B22H
		Fresh Water Hydrophore - Engine Room and Hull Generator	B3H
		Fresh Water Hydrophore - Other locations	B3H
		From Fresh Water Station up to Storage Tank	B3H
WW	Wast Water	Vacuum Lines	B3H
		Other Lines	B14H
		Side Shell and Bottom Hull Penetration pieces up to intermediate valve.	B18H

10. LIST OF HULL PIPING SPECS

Table 10-1-Hull Piping SPECS

SPEC	REV	PRESSURE CLASS	CORROSION ALLOWANCE (mm)	MIN TEMP (°C)	MAX TEMP (°C)	PIPE MATERIAL	SERVICE CODE
A3H	A	-	-	38	538	Stainless Steel	EG
B10H	A	150	1.6 mm	0	100	Carbon Steel	BG CHW CV DA DF FG OL PLD SN STA W TR PCG
B11H	A	150	-	0	150	Organic Coat CS	BG PCW
B12H	A	150	-	0	140	Super Duplex	F PC PCW
B14H	A	150	-	0	80	Organic Coat CS	AO BR BWG BWH CN CV DA FW PCG SW TC TR
B15H	0	150	6.0 mm	0	100	Mariloy™	PCG TR
B16H	A	150	-	-46	130	Duplex	AO PC PCG

 PETROBRAS		TECHNICAL SPECIFICATION				Nº: I-ET-3010.2Q-1200-200-P4X-001		REV. B
		MARLIM LESTE E SUL						SHEET: 19 OF 20
		TITLE: PIPING SPECIFICATION FOR TOPSIDE						ESUP
								INTERNAL
SPEC	REV	PRESSURE CLASS	CORROSION ALLOWANCE (mm)	MIN TEMP (°C)	MAX TEMP (°C)	PIPE MATERIAL	SERVICE CODE	
B18H	A	150	-	0	80	Organic Coat CS	AO BG BR BWG CN CNI DA DFC DTH GW PCW SA SP SW TC WW	
B20H	A	-	-	23	40	PVC	CHW CN GW PW W WW	
B21H	A	-	-	27	80	CPVC	PWH	
B22H	A	10 bar	-	15	90	FRP	DA HWU IW SW PWH W	
B23H	A	16 bar	-	5	90	FRP	BWH SW	
B26H	A	16 bar	-	5	110	FRP	PCW	
B3H	A	150	-	-0	150	SS 316/316L	BG CNI CV D DTH DW FLC FG GW H HBG IA JF PW PWH SA SP TL W WW	
B51H	A	150	-	0	150	SS 316/316L	D GW	
B52H	A	150	1.6 mm	0	100	Carbon Steel	DA SP	
B7H	A	20 bar	-	0	75	Copper-Nickel	DTH FL FW SW	
B8H	A	150	-	0	50	Galv. CS	SP	
B9H	A	150	3.2 mm	0	150	Carbon Steel	DFC	
C10H	A	300	1.6 mm	0	150	Carbon Steel	BG PCG PLD STA TR	
C11H	A	300	-	0	150	Organic Coat CS	ADW PC PCW	
C12H	A	300	-	-50	140	Super Duplex	PC PCW	
C14H	A	300	-	0	150	Organic Coat CS	BWH PCG TC TR	
C15H	A	300	6 mm	0	100	Mariloy™	PCG TR	
C16H	A	300	-	-46	150	Duplex	AM CNI PC PCW	
C23H	A	25 bar	-	5	90	FRP	SW	
C3H	A	300	-	0	150	SS 316/316L	D H	
C4H	A	300	1.6 mm	0	250	Carbon Steel	HWP	
C8H	A	300	-	-18	54	Galv. CS	DO	
E3H	A	600	-	0	100	SS 316/316L	H	
E8H	A	600	-	-18	54	Galv. CS	DO	
F3H	A	900	-	0	150	SS 316/316L	H	
G16H	A	1500	-	0	130	Duplex	H	
H16H	A	2500	-	0	130	Duplex	H	
T3H	A	-	-	0	60	Tubing SS316/316L	CI CNI	

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 20 OF 20
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL
11. PIPING MATERIAL SPECIFICATIONS			

		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2			
		PIPING SPECIFICATION FOR TOPSIDE								Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -	
Services (see notes): AM - Amine; BG - Inert Gas; CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); D - Diesel; DAL - Open Drain from Laboratory; DW - Distilled Water; F - Safety System and Flare; FG - Fuel Gas; FLC - Concentrated Foam; G - Glycol; H - Hydraulic Fluid; IA - Instrumentation Air; IG - Instrumentation Gas; IGN - Ignition Line; IN - Instrumentation Nitrogen; JF - Aviation Kerosene; P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon); PW - Potable Water; PWH - Hot Fresh Water;										Material: SS 316/316L		Class: 150		Standard: B3	
W - Industrial water; WW - Sewage Waste Water															
Pressure Rating (see notes)															
Temperature (°C)		-100	38	100	150	250	260								
Max Pressure (barg)		19.0	19.0	16.2	14.8	12.1	11.7								
Pipes and Fittings (see notes)															
Items		Code	Size	Wall	Class	Ends	Standard		Material						
Pipes	Pipe	T-322	½" - 1 ½"	S-40S	-	PE	ASME B36.19		ASTM A312 TP 316/316L SML						
		T-323	2" - 24"			BE	ASME B36.10/B36.19	ASTM A358 Type 316/316L Cl 1 or 3 WLD							
			26" - 36"								0.375"				
			38" - 44"	0.438"											
Fittings	90 Elbow	C01-43	½" - 1 ½"	-	3000	SW	ASME B16.11		ASTM A182 Gr F316/316L						
	45 Elbow	C02-43													
	Tee	C03-43													
	Cross	C05-43													
	Coupling	C06-43					MSS SP-97								
	Cap	C11-43													
	Socketlet	C55-43													
	Red Tee	C04-43													
	Red Coupling	C08-43	¾" - 1 ½"	ASME B16.11											
	Sweepolet	C57-43	1 ½" - 20"			MSS SP-97									
	Weldolet	C12-43	2" - 20"												
	90 LR Elbow	C15-44													
	45 LR Elbow	C16-44	2" - 44"	According to pipe	-			BE	ASME B16.9		ASTM A403 Gr WP316/316L				
	90 SR Elbow	C17-44													
	Tee	C20-44													
	Cap	C22-44													
	Cross	C24-44													
	Conc. Red	C18-44				3" - 44"									
	Ecc. Red	C19-44													
	Red Tee	C21-44													
Nipple	Straight Nipple	N-S145	½" - 1 ½"	According to pipe	-		PBE	ASTM A733		ASTM A312 TP316/316L					
	Swage Conc Nipple	N-C144	¾" - 1 ½"			MSS SP-95		ASTM A403 Gr WP316/316L							
		N-C444	2" - 4"												
	Swage Ecc Nipple	N-E144	¾" - 1 ½"												
		N-E444	2" - 4"												
Flanges	Socket Weld (SW)	F-150-JX	½" - 1 ½"	According to pipe	Class 150	Raised Face	ASME B16.5		ASTM A182 Gr F316/316L						
	Welding Neck (WN)	F-150-KX	2" - 24"				ASME B16.47 A								
			26" - 44"			ISO 6162-1									
	Blind	F-350-4X	½" - 3"			max 350 bar	Raised Face	ASME B16.5							
		F-150-LX	1" - 24"					ASME B16.47 A							
			26" - 44"					ISO 6162-1							
	Hyd One-Piece Flange	F-350-3X	½" - 3"			max 350 bar	-	ISO 6162-1							
Gasket	Spiral-Wound	J-150-EH	½" - 44"	-	Class 150	Raised Face	ASME B16.20		AISI 316/graphite						
Stud & Nuts	Stud and Nuts	P-150-08	½" - 1 ½"	-	-	-	ASME B1.1		A194 7L, Zn-Ni						
							ASME B1.1		A320 L7, Zn-Ni						
Bolt	2 x Hex Bolt	H-150-02	½" - 1 ½"	According to pipe	-	-	ASME B1.1		ASTM A320 GR L7						
Paddles	Figure-8 Blank	R8-150-RS	½" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48		Stainless Steel ASTM A240 316						
	Paddle Blank	RA-150-RS													
	Paddle Spacer	RE-150-RS													

Temp	Type	Size

Branch (see notes)

SOC - Sockolet

process data low

THIS DOCUMENT IS PROPERTY OF PETROBRAS, BEING ITS USE PROHIBITED OUTSIDE ITS PURPOSE

 PETROBRAS		1	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2																						
									PIPING SPECIFICATION FOR TOPSIDE						Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : 1.6 mm																
Services (see notes): HF - Hot Fluid; HWP - Process Heating Water; HWU - Utility Heating Water; S - Steam; SC - Steam Condensate;										Material: Carbon Steel		Class: 150		Standard: B4																					
Pressure Rating (see notes)																																			
Temperature (°C)		0		38		50		100		150		200		250		300																			
Max Pressure (barg)		19.6		19.6		19.2		17.7		15.8		13.8		12.1		10.2																			
Pipes and Fittings (see notes)																																			
Items			Code		Size		Wall		Class		Ends		Standard				Material																		
Pipes	Pipe		T-102		½" - 1 ½"		XS		-		PE		ASME B36.10				API 5L Gr B PSL 1 SML																		
					2" - 6"		STD																												
					8" - 12"		S-20																												
					14"		S-10																												
					16" - 18"																														
					20"						0.281"																								
24"		0.312"		BE							API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)																								
API 5L Gr B PSL 1 WLD (HFW or SAW)																																			
Fittings	90 Elbow		C01-02		½" - 1 ½"		-		3000		SW		ASME B16.11				ASTM A105																		
	45 Elbow		C02-02																																
	Tee		C03-02																																
	Cross		C05-02																																
	Coupling		C06-02																																
	Cap		C11-02																																
	Socketlet		C55-02		¾" - 1 ½"		According to pipe		-		BE		ASME B16.11																						
	Red Tee		C04-02																																
	Red Coupling		C08-02																																
	Weldolet		C12-02		1" - 10"								MSS SP-97																						
	90 LR Elbow		C15-03																																
	45 LR Elbow		C16-03																																
	90 SR Elbow		C17-03		2" - 24"								ASME B16.9				ASTM A234 Gr WPB																		
	Tee		C20-03																																
	Cap		C22-03																																
	Cross		C24-03																																
	Conc. Red		C18-03																																
	Ecc. Red		C19-03																																
	Red Tee		C21-03		3" - 24"																														
Straight Nipple		N-S120		½" - 1 ½"		According to pipe																-		PBE		ASTM A733				API 5L Gr B PSL 1 seamless					
Swage Conc Nipple		N-C103		¾" - 1 ½"																															
		N-C403		2" - 4"																															
Swage Ecc Nipple		N-E103		¾" - 1 ½"									2" - 4"		BLE x PSE		MSS SP-95				ASTM A234 Gr WPB														
		N-E403																																	
Flanges		Socket Weld (SW)		F-150-J2				½" - 1 ½"		According to pipe		Class 150		Raised Face		ASME B16.5				ASTM A105															
		Welding Neck (WN)		F-150-K2		2" - 24"																													
		Blind		F-150-L2		½" - 24"																													
Gasket	Spiral-Wound		J-150-EH		½" - 24"		-		Class 150		Raised Face		ASME B16.20				AISI 316/graphite																		
Stud & Nuts	Stud and Nuts		P-150-01		½" - 1 ¼"		-		-		-		ASME B1.1				A194 Gr 2H																		
																	A193 B7																		
Bolt	2 x Hex Bolt		H-150-01		½" - 1 ½"		According to pipe		-		-		ASME B1.1				ASTM A193 Gr B7																		
Paddles	Figure-8 Blank		R8-150-RC		½" - 14"		According to pipe		150		Raised Face ASME B16.5		ASME B16.48				Carbon Steel ASTM A516 GR60																		
	Paddle Blank		RA-150-RC																																
	Paddle Spacer		RE-150-RC																																

		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES	Doc: I-ET-3010.2Q-1200-200-P4X-001	Revision: Rev B	Sheet: 2 of 2
		PIPING SPECIFICATION FOR TOPSIDE			Material: Carbon Steel

Valves (see notes)															
Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Check	½" - 1 ½"	VRE-800-1-C103	-29C to 400C	Ball	¾" - 1 ½"	VES-150-1-C100	-29C to 100C	Ball	2" - 24"	VES-150-2-C162	0C to 210C	Gate	2" - 24"	VGA-150-1-C132	-29C to 400C
Needle	½" - 1 ½"	VAG-3000-1-S201	-100C to 200C			VES-802-1-C105	VES-150-3-C162			VGA-150-2-C131					
		VAG-3000-1-S202	-100C to 400C		VES-802-2-C105	VES-150-3-C163	VGA-150-2-C132								
Butterfly	6" - 20"	VBO-150-2-C111	-29C to 150C		VES-802-3-C105	Gate	½" - 1 ½"	VGA-801-1-C101	-29C to 400C	Globe	2" - 18"	VGL-150-1-C102	-29C to 400C		
	24"	VBO-150-2-C113	-29C to 200C		VES-150-1-C160			VGA-801-1-C102				VGL-150-2-C102			
	6" - 20"	VBO-150-3-C161	-29C to 240C		VES-150-1-C162			VGA-801-2-C101		Check	2" - 24"	VRE-150-1-C113	-29C to 400C		
	24"	VBO-150-3-C163			VES-150-2-C160			VGA-150-1-C131				VRE-150-2-C113			

Branch (see notes)											
RUN SIZE 0.5 0.75 1 1.5 2 3 4 6 8 10 12 14 16 18 20 24	0.5	TEE									
	0.75	RTEE	TEE								
	1	RTEE	RTEE	TEE							
	1.5	RTEE	RTEE	RTEE	TEE						
	2	SOC	SOC	SOC	SOC	TEE					
	3	SOC	SOC	SOC	SOC	RTEE	TEE				
	4	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE			
	6	SOC	SOC	SOC	SOC	WOL	RTEE	RTEE	TEE		
	8	SOC	SOC	SOC	SOC	WOL	WOL	RTEE	RTEE	TEE	
	10	SOC	SOC	SOC	SOC	WOL	WOL	WOL	RTEE	RTEE	TEE
	12	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE
	14	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE
	16	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE
	18	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE
	20	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE
	24	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE
BRANCH SIZE 0.5 0.75 1 1.5 2 3 4 6 8 10 12 14 16 18 20 24											
WOL - Weldolet TEE - Tee RTEE - Red Tee HC - Half Coupling SOC - Sockolet											

Notes	
1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges ≤ 1 1/2" may be used, if strictly necessary .
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc:		Revision:		Sheet	
									I-ET-3010.2Q-1200-200-P4X-001		Rev B		1 of 2	
PIPING SPECIFICATION FOR TOPSIDE									Issued by :		Code:		Corr. Allow.:	
									SRGE/ESUP		ASME B31.3		1.6 mm	
Services (see notes): F - Safety System and Flare; FG - Fuel Gas; G - Glycol; GL - Refrigerated Liquified Petroleum Gases in Low Temperature; P - Process (non-corrosive hydrocarbon);									Material:		Class:		Standard:	
									Low Temp CS		150		B6	
Pressure Rating (see notes)														
Temperature (°C)		-46	0	38	50	100	150	200	240					
Max Pressure (barg)		19.6	19.6	19.6	19.2	17.7	15.8	13.8	12.4					
Pipes and Fittings (see notes)														
Items		Code	Size	Wall	Class	Ends	Standard		Material					
Pipes	Pipe	T-105	½" - 1 ½"	S-160	-	PE	ASME B36.10	ASTM A333 Gr 6 SML						
			2" - 6"	STD		BE								
			8" - 12"	S-20										
			14"	S-10										
		T-106	16" - 30"	32" - 36"	STD	ASTM A671 Gr CC60 Class 22 WLD								
Fittings	90 Elbow	C01-04	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A350 Gr LF2 Cl 1						
	45 Elbow	C02-04												
	Tee	C03-04												
	Cross	C05-04												
	Coupling	C06-04												
	Cap	C11-04												
	Sockolet	C55-04												
	Red Tee	C04-04												
	Red Coupling	C08-04	¾" - 1 ½"	MSS SP-97										
	Weldolet	C12-04			ASME B16.11									
	90 LR Elbow	C15-05	2" - 16"	-	BE	ASME B16.9	ASTM A420 Gr WPL6							
	45 LR Elbow	C16-05												
	90 SR Elbow	C17-05												
	Tee	C20-05												
	Cap	C22-05												
	Cross	C24-05												
	Conc. Red	C18-05												
	Ecc. Red	C19-05							3" - 36"	MSS SP-97				
	Red Tee	C21-05	ASME B16.11											
Nipple	Straight Nipple	N-S137	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A333 Gr 6						
	Swage Conc Nipple	N-C105	¾" - 1 ½"			BLE x PSE PBE BLE x PSE	MSS SP-95	ASTM A420 Gr WPL6						
		N-C405	2" - 4"											
	Swage Ecc Nipple	N-E105	¾" - 1 ½"											
		N-E405	2" - 4"											
Flanges	Socket Weld (SW)	F-150-J3	½" - 1 ½"	According to pipe	Class 150	Raised Face	ASME B16.5	ASTM A350 Gr LF2 Class 1						
	Welding Neck (WN)	F-150-K3	2" - 24"				ASME B16.47 A							
			26" - 36"				-							
	Blind	F-150-L3	½" - 36"				ASME B16.5							
			1" - 24"				ASME B16.47 A							
			26" - 36"				ASME B16.20							
Gasket	Spiral-Wound	J-150-EH	½" - 36"	-	Class 150	Raised Face	ASME B16.20	AISI 316/graphite						
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni						
								A193 B7, Zn-Ni						
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7						
Paddles	Figure-8 Blank	R8-150-RL	½" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48	Low Temp. Carbon Steel ASTM A516 70 + S5						
	Paddle Blank	RA-150-RL	16" - 36"											
	Paddle Spacer	RE-150-RL												

[illegible]

SOC - Sockolet

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
25	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and standard material specification.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001: supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001: and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS		1	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2							
			PIPING SPECIFICATION FOR TOPSIDE							Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -					
Services (see notes): FL - Foam Line; FW - Fire Water (Sea Water);								Material: Copper-Nickel		Class: 20 bar		Standard: B7							
Pressure Rating (see notes)																			
Temperature (°C)		0		38		65		75											
Max Pressure (barg)		19		19		18.8		18.7											
Pipes and Fittings (see notes)																			
Items		Code	Size	Wall	Class	Ends	Standard	Material											
Pipes	Pipe	T-202	½" - ¾"	2.0mm	-	PE	EEMUA 234	Cu-Ni 90/10 (UNS C7060X) SML											
			1" - 2"	2.5mm		BE													
			2 ½" - 3"																
			4"	3.0mm															
			6"	3.5mm															
			8"	4.5mm															
			10"	5.5mm															
			12"	7.0mm															
			14"	8.0mm															
			16"	9.0mm															
			18"	9.5mm															
			20"	11.0mm															
			24"	13.0mm															
			28"	15.0mm				Cu-Ni 90/10 (UNS C7060X) WLD											
			32"	17.0mm															
			36"	19.0mm															
Fittings	90 Elbow	C01-35	½" - 1 ½"	-	20 bar	Fcap	EEMUA 234	Cu-Ni 90/10 (UNS C7060X)											
	45 Elbow	C02-35				THD													
	Tee	C03-35				Fcap													
	Coupling	C06-35																	
	Plug	C09-35				-													
	Union	C10-35				Cap													
	Cap	C11-35				Fcap													
	Connector	C37-35				FTHD x Mcap													
	Connector Union	C38-35				FTHD x Mcap													
	Socketlet	C55-35	½" - 2"	-	BE														
	Red Coupling	C08-35	¾" - 1 ½"	20 bar	BE														
	Bush	C23-35	According to pipe	-	BE														
	Weldolet	C12-35																	
	90 LR Elbow	C15-35																	
	45 LR Elbow	C16-35																	
	Tee	C20-35																	
	Cap	C22-35																	
	Conc. Red	C18-35																	
	Ecc. Red	C19-35																	
	Red Tee	C21-35																	
	Stub End WN-L	C39-35	4" - 36"	-	20 bar														
Nipple	Connector Nipple	N-A335	¾" - 1 ½"	According to pipe	-	TBE	EEMUA 234	Cu-Ni 90/10 (UNS C7060X)											
		N-A735				FTHD x Fcap													
		N-A835				MTHD x Fcap													
Flanges	Slip on (SO)	F-20-HM	½" - 1 ½"	According to pipe	20 bar	Raised Face	EEMUA 234	Cu-Ni 90/10 (UNS 7060X)											
	Blind	F-150-LY	1" - 24"		Class 150		ASME B16.5							ASTM A105 Thermal Spray coated (note 126)					
			28" - 36"				ASME B16.47 A												
	Backing Flange	F-20-Y2	2" - 36"		20 bar		EEMUA 234	ASTM A105											
Gasket	Flat type	J-150-P4	½" - 36"	-	Class 150	Raised Face	ASME B16.21	Compressed sheet, fire-tested											
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni											
								A193 B7, Zn-Ni											
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7											
Paddles	Figure-8 Blank	R8-150-RT	½" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 CurAl Thermal Spray coated (note 126)											
	Paddle Blank	RA-150-RT	16" - 36"																
	Paddle Spacer	RE-150-RT																	

Valves (see notes)

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp			
Check	½" - 1 ½"	VRE-200-1-U122	0C to 75C	Ball	1" - 1 ½"	VES-150-1-U300	0C to 90C	Diaphragm	1 ½" - 12"	VDI-300-2-U301	0C to 80C	Globe	2" - 18"	VGL-150-1-U301	0C to 90C			
Butterfly	6" - 20"	VBO-150-2-U351	0C to 90C		2" - 24"	VES-150-2-U300			Angular	2 ½"	VAN-150-1-U101		0C to 75C	VGL-150-2-U301				
	24" - 36"	VBO-150-2-U353			VES-150-2-U311	Gate			½" - 1 ½"	VGA-200-1-U101	-29C to 75C	Check	2" - 36"	VRE-150-1-U311	0C to 90C			
	6" - 20"	VBO-150-3-U361	0C to 75C		Gate				1" - 24"	VGA-150-1-U331	0C to 90C			½" - 1 ½"		VGL-150-1-U101	VRE-150-1-U312	
	24" - 36"	VBO-150-3-U363								VGA-150-2-U331				Globe		½" - 1 ½"	VGL-150-1-U101	0C to 75C

Branch (see notes)

RUN SIZE

0.5	TEE																			
0.75	RTEE	TEE																		
1	RTEE	RTEE	TEE																	
1.25	RTEE	RTEE	RTEE	TEE																
1.5	RTEE	RTEE	RTEE	TEE	TEE															
2	SOC	SOC	SOC	SOC	RTEE	TEE														
2.5	SOC	SOC	SOC	SOC	SOC	RTEE	TEE													
3	SOC	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE												
4	SOC	SOC	SOC	SOC	SOC	RTEE	RTEE	RTEE	TEE											
6	SOC	SOC	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE											
8	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	RTEE	RTEE	TEE									
10	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	RTEE	RTEE	TEE								
12	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE							
14	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE							
16	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE						
18	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE					
20	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE				
24	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE			
28	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE		
32	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE	
36	SOC	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE
0.5	0.75	1	1.25	1.5	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	32	36

BRANCH SIZE

0.5	0.75	1	1.25	1.5	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	32	36

WOL - Weldolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

Notes

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
53	This spec must be used only for offshore facilities.
86	Pipes in this spec do not take account additional thickness for threads. Must be evaluated pipes thicker than these here specified if threaded pipe will be applied.
87	Piping, connections and flanges should be specified according EEMUA 234.
104	The backing flange and stub ends are part of the composite flange according EEMUA 234.
110	Epoxy coating for flanges shall be applied according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
115	Gaskets shall not be used to assembly butterfly valves API 609 category A, unless required required by the valve manufacturer.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
126	Thermal spray application shall be according to the requirements of I-ET-3010.00-1200-956-P4X-003. Consumable specification: AWS C2.25m: W-CuAl-1 or ISO 14919: CuAl10.
143	Piping materiall shall be certified and approved by Classification Society for the intended service.
152	SW connection may be used instead of capillary connection.
153	Backing flange in carbon steel shall be galvanized before painting.

		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2										
		PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: 3.2 mm								
Services (see notes): AM - Amine; DA - Open Drain; DFC - Closed Drain (Corrosive Hydrocarbon); F - Safety System and Flare; PC - Process (Corrosive Hydrocarbon);										Material: Carbon Steel		Class: 150		Standard: B9								
Pressure Rating (see notes)																						
Temperature (°C)		-29	0	38	50	100	150	200	240													
Max Pressure (barg)		19.6	19.6	19.6	19.2	17.7	15.8	13.8	12.4													
Pipes and Fittings (see notes)																						
Items		Code	Size	Wall	Class	Ends	Standard		Material													
Pipes	Pipe	T-102	½" - 1 ½"	S-160	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML														
			2"	XS		BE		API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)														
			3" - 6"	STD																		
			8" - 10"	S-20																		
			12"	0.281"																		
			14"	S-20																		
			16" - 18"																			
			20" - 24"																			
			26" - 28"	STD										API 5L Gr B PSL 1 WLD (HFW or SAW)								
			30" - 32"	0.406"										API 5L Gr B PSL 1 WLD SAW								
34"	0.438"																					
36"	0.469"																					
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A105														
	45 Elbow	C02-02																				
	Tee	C03-02																				
	Cross	C05-02																				
	Coupling	C06-02																				
	Cap	C11-02																				
	Sockolet	C55-02																				
	Red Tee	C04-02	¾" - 1 ½"	According to pipe	-	BE	MSS SP-97	ASTM A234 Gr WPB														
	Red Coupling	C08-02																				
	Weldolet	C12-02	2" - 16"																			
	90 LR Elbow	C15-03	2" - 36"																			
	45 LR Elbow	C16-03																				
	90 SR Elbow	C17-03																				
	Tee	C20-03																				
	Cap	C22-03																				
	Cross	C24-03																				
	Conc. Red	C18-03	3" - 36"																			
	Ecc. Red	C19-03																				
	Red Tee	C21-03																				
Nipple	Straight Nipple	N-S120	½" - 1 ½"				According to pipe							-	PBE	ASTM A733	API 5L Gr B PSL 1 seamless					
	Swage Conc Nipple	N-C103	¾" - 1 ½"												BLE x PSE	MSS SP-95	ASTM A234 Gr WPB					
		N-C403	2" - 4"																			
	Swage Ecc Nipple	N-E103	¾" - 1 ½"																			
		N-E403	2" - 4"																			
Flanges	Socket Weld (SW)	F-150-J2	½" - 1 ½"				According to pipe							Class 150	Raised Face	ASME B16.5	ASTM A105					
	Welding Neck (WN)	F-150-K2	2" - 24"	ASME B16.47 A																		
			26" - 36"	-																		
	Blind	F-150-L2	½" - 36"																			
Gasket	Spiral-Wound	J-150-EH	½" - 36"	-	Class 150	Raised Face	ASME B16.20							AISI 316/graphite								
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ½"	-	-	-	ASME B1.1							A194 Gr 2H, Zn-Ni								
							A193 B7, Zn-Ni															
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1							ASTM A193 Gr B7								
Paddles	Figure-8 Blank	R8-150-RC	½" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48							Carbon Steel ASTM A516 GR60								
	Paddle Blank	RA-150-RC																				
	Paddle Spacer	RE-150-RC																				

[illegible]

SOC - Sockolet

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to <u>specify it according the design premisses.</u>
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary .
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
54	This spec for PC service should only be used when recommended in I-ET-3010.XX-1200-940-P4X-001.
62	This spec for Amine service is applicable for piping downstream the Amine stripper up to booster pump suction.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2	
		PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3	
Services (see notes): AM - Amine; BG - Inert Gas; CHW - Chilled Water; C1 - Chemical Injection (non-corrosive); D - Diesel; DF - Closed Drain (Non-Corrosive hydrocarbon); F - Safety System and Flare; FG - Fuel Gas; FL - Foam Line; G - Glycol; IW - De-Aerated Sea Water Injection; OL - Lubricating Oil; P - Process (non-corrosive hydrocarbon); RF - Refrigerant Fluid; SA - Service Compressed Air (utility Air); SN - Start-up Nitrogen; W - Industrial water;								Material: Carbon Steel		Class: 150		Standard: B10	
Pressure Rating (see notes)													
Temperature (°C)		-29	0	38	50	100	150	200					
Max Pressure (barg)		19.6	19.6	19.6	19.2	17.7	15.8	13.8					
Pipes and Fittings (see notes)													
Items		Code	Size	Wall	Class	Ends	Standard		Material				
Pipes	Pipe	T-102	½" - 1 ½"	S-160	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML					
			2"	STD		API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)							
			3" - 6"	S-20									
			8" - 12"	S-10									
			14"	S-10		API 5L Gr B PSL 1 WLD (HFW or SAW)							
			16" - 18"	0.281"									
			20"	0.312"		API 5L Gr B PSL 1 WLD SAW							
			24"	S-10									
			26" - 28"	0.344"									
			30" - 32"	STD									
			34"	0.406"									
			36"	0.438"									
			38"	0.469"									
			40"										
			42"										
			44"										
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A105					
	45 Elbow	C02-02											
	Tee	C03-02											
	Cross	C05-02											
	Coupling	C06-02											
	Cap	C11-02											
	Sockolet	C55-02											
	Red Tee	C04-02	¾" - 1 ½"	According to pipe	-	BE	ASME B16.9	ASTM A234 Gr WPB					
	Red Coupling	C08-02											
	Weldolet	C12-02	2" - 20"										
	90 LR Elbow	C15-03	2" - 44"										
	45 LR Elbow	C16-03											
	90 SR Elbow	C17-03											
	Tee	C20-03											
	Cap	C22-03											
	Cross	C24-03											
	Conc. Red	C18-03	3" - 44"										
	Ecc. Red	C19-03											
	Red Tee	C21-03											
	Nipple	Straight Nipple	N-S120	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	API 5L Gr B PSL 1 seamless				
Swage Conc Nipple		N-C103	¾" - 1 ½"	BLE x PSE			MSS SP-95	ASTM A234 Gr WPB					
		N-C403	2" - 4"										
Swage Ecc Nipple		N-E103	¾" - 1 ½"										
		N-E403	2" - 4"										
Flanges	Socket Weld (SW)	F-150-J2	½" - 1 ½"	According to pipe	Class 150	Raised Face	ASME B16.5	ASTM A105					
	Welding Neck (WN)	F-150-K2	2" - 24"				ASME B16.47 A						
			26" - 44"				-						
	Blind	F-150-L2	½" - 44"										
Gasket	Spiral-Wound	J-150-EH	½" - 44"	-	Class 150	Raised Face	ASME B16.20	AISI 316/graphite					
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni					
							A193 B7, Zn-Ni						
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7					
Paddles	Figure-8 Blank	R8-150-RC	½" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60					
	Paddle Blank	RA-150-RC											
	Paddle Spacer	RE-150-RC											

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52

 PETROBRAS	I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200- P4X-001		Revision: Rev B		Sheet 1 of 2					
		PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -			
										Material: Organic Coat CS		Class: 150		Standard: B11			
Services (see notes): ADW - Aerated Dilution Water; PC - Process (Corrosive Hydrocarbon); PCW - Produced water;																	
Pressure Rating (see notes)																	
Temperature (°C)		0	38	50	100	150											
Max Pressure (barg)		19.6	19.6	19.2	17.7	15.8											
Pipes and Fittings (see notes)																	
Items		Code	Size	Wall	Class	Ends	Standard		Material								
Pipes	Pipe	T-102	3" - 6"	STD	-	BE	ASME B36.10		API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW) API 5L Gr B PSL 1 WLD (HFW or SAW) API 5L Gr B PSL 1 WLD SAW								
			8" - 12"	S-20													
			14"	S-10													
			16" - 24"														
			26" - 28"														
Fittings	Weldolet	C12-02	3" - 12"	According to pipe	-	BE	MSS SP-97		ASTM A105								
	90 LR Elbow	C15-03	3" - 28"				ASME B16.9		ASTM A234 Gr WPB								
	45 LR Elbow	C16-03															
	90 SR Elbow	C17-03															
	Tee	C20-03															
	Cap	C22-03															
	Cross	C24-03															
	Conc. Red	C18-03															
	Ecc. Red	C19-03															
	Red Tee	C21-03	4" - 28"														
Flanges	Welding Neck (WN)	F-150-K2	3" - 24"	According to pipe	Class 150	Raised Face	ASME B16.5		ASTM A105								
	Blind	F-150-L2	3" - 28"				ASME B16.47 A										
							-										
Gasket	Flat type	J-150-PC	3" - 28"	-	Class 150	Raised Face	ASME B16.21		Multidirectional Expanded PTFE								
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ¼"	-	-	-	ASME B1.1		A194 Gr 2H, Zn-Ni								
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1		ASTM A193 Gr B7								
Paddles	Figure-8 Blank	R8-150-RP	3" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48		Carbon Steel ASTM A516 GR60 epoxi coated								
	Paddle Blank	RA-150-RP	16" - 28"														
	Paddle Spacer	RE-150-RP															



Doc:
**I-ET-3010.2Q-1200-200-
P4X-001**

Sheet:
2 of 2

Material:
**Organic
Coat CS**

Class:	150

Standard:
B11

[illegible]

Run Size	1	1.5	2	3	4	6	8	10	12	14	16	18	20	24	26	28	
1	TEE																
1.5	RTEE	TEE															
2	RTEE	RTEE	TEE														
3	WOL	RTEE	RTEE	TEE													
4	WOL	WOL	RTEE	RTEE	TEE												
6	WOL	WOL	WOL	RTEE	RTEE	TEE											
8	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE										
10	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	TEE									
12	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	TEE								
14	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	TEE							
16	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	TEE						
18	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE					
20	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE				
24	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE			
26	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE		
28	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE	
28	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	
		1	1.5	2	3	4	6	8	10	12	14	16	18	20	24	26	28
		Branch Size															

WOL - Weldolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
50	Piping, fittings and accessories shall be organic coated internally according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
54	This spec for PC service should only be used when recommended in I-ET-3010.XX-1200-940-P4X-001.
115	Gaskets shall not be used to assembly butterfly valves API 609 category A, unless required required by the valve manufacturer.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
151	Pipe NPS 2 and smaller shall be used only for short-length branch connections, where the coating application is feasible.



Doc:
**I-ET-3010.2Q-1200-200-
P4X-001**

Sheet:

1 of 2

Issued by:	Code:
SRGE/ESUP	ASME B31.3

Material:	Super Duplex

Class:	150

Standard:
B12

Temperature (°C)	0	38	50	100	120	140						
Max Pressure (barg)	20	20	19.5	17.7	16.9	16.1						

Items	Code	Size	Wall	Class	Ends	Standard	Material

THIS DOCUMENT IS PROPERTY OF PETROBRAS, BEING ITS USE PROHIBITED OUTSIDE ITS PURPOSE

[illegible]

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
26	See Annex A for valve casting qualification requirements.
48	Superduplex external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
54	This spec for PC service should only be used when recommended in I-ET-3010.XX-1200-940-P4X-001.
57	All standardized pipe wall thickness herein listed are calculated considering only internal pressure. Other loads resulting of the piping analysis (supporting, flexibility, fatigue) may increase minimum required thickness.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
122	Inspection of pipe and piping components shall follow ASTM A923 requirements.
123	The application of this pipe specification for PCW - Produced Water is conditioned to maximum oxygen content 20 ppb and max temperature 120°C.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS	I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200- P4X-001		Revision: Rev B		Sheet 1 of 2								
		PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -						
										Material: Organic Coat CS		Class: 150		Standard: B14						
Services (see notes): CN - Sodium Hypochlorite; DA - Open Drain; IW - De-Aerated Sea Water Injection; IWC - Aerated Sea Water Injection; SW - Aerated Sea Water;																				
Pressure Rating (see notes)																				
Temperature (°C)		0	38	50	70	80														
Max Pressure (barg)		19.6	19.6	19.2	18.6	18.4														
Pipes and Fittings (see notes)																				
Items		Code	Size	Wall	Class	Ends	Standard		Material											
Pipes	Pipe	T-102	3" - 6"	STD	-	BE	ASME B36.10	API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)												
			8" - 12"	S-20																
			14"	S-10				API 5L Gr B PSL 1 WLD (HFW or SAW)												
			16" - 24"																	
			26" - 30"					API 5L Gr B PSL 1 WLD SAW												
			32" - 44"	STD																
Fittings	Weldolet	C12-02	3" - 20"	According to pipe	-	BE	MSS SP-97	ASTM A105												
	90 LR Elbow	C15-03	3" - 44"				ASME B16.9	ASTM A234 Gr WPB												
	45 LR Elbow	C16-03																		
	90 SR Elbow	C17-03																		
	Tee	C20-03																		
	Cap	C22-03																		
	Cross	C24-03																		
	Conc. Red	C18-03																		
	Ecc. Red	C19-03												4" - 42"						
Red Tee	C21-03																			
Flanges	Welding Neck (WN)	F-150-D2	3" - 24"	According to pipe	Class 150	Flat Face	ASME B16.5	ASTM A105												
	Blind	F-150-E2	26" - 44"				ASME B16.47 A													
			3" - 44"				-													
Gasket	Flat type	J-150-CC	3" - 44"	-	Class 150	Flat Face	ASME B16.21	Multidirectional Expanded PTFE												
Stud & Nuts	Stud and Nuts	P-150-07	1" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni												
							A193 B7, Zn-Ni													
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7												
Paddles	Figure-8 Blank	R8-150-FP	3" - 14"	According to pipe	150	Flat Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 epox i coated												
	Paddle Blank	RA-150-FP	16" - 44"																	
	Paddle Spacer	RE-150-FP																		

[illegible]

SOC - Sockolet

1	On the spec valve list, it may have valve codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges ≤ 1 1/2" may be used, if strictly necessary.
7	Welding and Welding Inspection activities shall follow the requirements of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
28	The IW service is only applicable for offshore units.
50	Piping, fittings and accessories shall be organic coated internally according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
115	Gaskets shall not be used to assembly butterfly valves API 609 category A, unless required required by the valve manufacturer.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: incolel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
137	For Sodium Hypochlorite (CN) service only shall be applied the following valves: VRE-150-2-U655; VRE-150-2-D305; VAG-150-1-D301; VES-150-2-U600; VES-150-3-D300.
151	Pipe NPS 2 and smaller shall be used only for short-length branch connections, where the coating application is feasible.

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2						
			PIPING SPECIFICATION FOR TOPSIDE							Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -				
Services (see notes): AM - Amine; CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); F - Safety System and Flare; PC - Process (Corrosive Hydrocarbon); PCW - Produced water;								Material: Duplex		Class: 150		Standard: B16						
Pressure Rating (see notes)																		
Temperature (°C)		-46	0	38	50	100	130											
Max Pressure (barg)		20	20	20	19.5	17.7	16.5											
Pipes and Fittings (see notes)																		
Items		Code	Size	Wall	Class	Ends	Standard	Material										
Pipes	Pipe	T-301	½" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S31803) SML										
		T-302	2" - 8"			BE		ASTM A928 (UNS S31803 CI 1 or 3) WLD										
			10" - 24"	0.375"														
Fittings	90 Elbow	C01-27	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F51 (UNS S31803)										
	45 Elbow	C02-27																
	Tee	C03-27																
	Cross	C05-27																
	Coupling	C06-27																
	Cap	C11-27																
	Socketlet	C55-27																
	Red Tee	C04-27	¾" - 1 ½"	-	-	SW	ASME B16.11	ASTM A182 Gr F51 (UNS S31803)										
	Red Coupling	C08-27																
	Weldolet	C12-27	2" - 18"	According to pipe	-	BE	ASME B16.9	ASTM A815 (UNS S31803)										
	90 LR Elbow	C15-29	2" - 40"															
	45 LR Elbow	C16-29																
	90 SR Elbow	C17-29																
	Tee	C20-29																
	Cap	C22-29																
	Cross	C24-29																
	Conc. Red	C18-29	3" - 40"															
	Ecc. Red	C19-29																
	Red Tee	C21-29																
Nipple	Straight Nipple	N-S128	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A790 (UNS S31803)										
	Swage Conc Nipple	N-C129	¾" - 1 ½"				MSS SP-95	ASTM A815 (UNS S31803)										
		N-C429	2" - 4"															
	Swage Ecc Nipple	N-E129	¾" - 1 ½"															
		N-E429	2" - 4"															
Flanges	Socket Weld (SW)	F-150-JG	½" - 1 ½"	According to pipe	Class 150	Raised Face	ASME B16.5	ASTM A182 Gr F51										
	Welding Neck (WN)	F-150-KG	2" - 24"				ASME B16.47 A											
			26" - 40"				-											
			½" - 40"				ASME B16.5											
	Blind	F-150-LG	1" - 24"				ASME B16.47 A											
			26" - 40"															
Gasket	Spiral-Wound	J-150-EL	½" - 40"	-	Class 150	Raised Face	ASME B16.20	Duplex/graphite										
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni										
								A193 B7, Zn-Ni										
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7										
Paddles	Figure-8 Blank	R8-150-RD	½" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48	Duplex Stainless Steel ASTM A240 UNS31803										
	Paddle Blank	RA-150-RD	16" - 40"															
	Paddle Spacer	RE-150-RD																

[illegible]

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary .
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
26	See Annex A for valve casting qualification requirements.
29	Duplex stainless steel external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
54	This spec for PC service should only be used when recommended in I-ET-3010.XX-1200-940-P4X-001.
57	All standardized pipe wall thickness herein listed are calculated considering only internal pressure. Other loads resulting of the piping analysis (supporting, flexibility , fatigue) may increase minimum required thickness.
60	This spec for Amine service is applicable for piping upstream the Amine Regeneration unit.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
122	Inspection of pipe and piping components shall follow ASTM A923 requirements.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010 XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc:		Revision:		Sheet	
								I-ET-3010.2Q-1200-200-P4X-001		Rev B		1 of 2	
PIPING SPECIFICATION FOR TOPSIDE								Issued by :	Code:		Corr. Allow.:		
								SRGE/ESUP	ASME B31.3		6.4 mm		
Services (see notes): PC - Process (Corrosive Hydrocarbon);								Material:	Class:		Standard:		
								Carbon Steel	150		B17		
Pressure Rating (see notes)													
Temperature (°C)		0	38	50	100	120							
Max Pressure (barg)		19.6	19.6	19.2	17.7	16.9							
Pipes and Fittings (see notes)													
Items		Code	Size	Wall	Class	Ends	Standard		Material				
Pipes	Pipe	T-102	¾" - 1 ½"	XXS	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML					
			2" - 3"	S-160		BE			API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)				
			4"	XS									
			6"	0.344"									
			8"	S-60									
			10"	0.438"									
			12" - 14"	S-40									
Fittings	Sockolet	C55-02	½" - 1 ½"	-	9000	SW	MSS SP-97	ASTM A105					
	90 Elbow	C01-02	¾" - 1 ½"				ASME B16.11						
	45 Elbow	C02-02											
	Tee	C03-02											
	Cross	C05-02											
	Coupling	C06-02											
	Cap	C11-02											
	Red Tee	C04-02											
	Red Coupling	C08-02											
	Weldolet	C12-02	1" - 6"	According to pipe	-	BE		MSS SP-97	ASTM A234 Gr WPB				
	90 LR Elbow	C15-03	2" - 14"				ASME B16.9						
	45 LR Elbow	C16-03											
	90 SR Elbow	C17-03											
	Tee	C20-03											
	Cap	C22-03											
	Cross	C24-03											
	Conc. Red	C18-03						3" - 14"					
	Ecc. Red	C19-03											
	Red Tee	C21-03											
Nipple	Straight Nipple	N-S120	¾" - 1 ½"	According to pipe	-	PBE	ASTM A733	API 5L Gr B PSL 1 seamless					
	Swage Conc Nipple	N-C103	1 ½"			BLE x PSE	MSS SP-95	ASTM A234 Gr WPB					
		N-C403	2" - 4"										
	Swage Ecc Nipple	N-E103	1 ½"										
		N-E403	2" - 4"										
Flanges	Socket Weld (SW)	F-150-J2	¾" - 1 ½"	According to pipe	Class 150	Raised Face	ASME B16.5	ASTM A105					
	Welding Neck (WN)	F-150-K2	2" - 14"			-							
	Blind	F-150-L2	¾" - 14"										
Gasket	Spiral-Wound	J-150-EH	¾" - 14"	-	Class 150	Raised Face	ASME B16.20	AISI 316/graphite					
Stud & Nuts	Stud and Nuts	P-150-07	¾" - 1"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni					
								A193 B7, Zn-Ni					
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7					

 PETROBRAS		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES	Doc: I-ET-3010.2Q-1200-200-P4X-001	Revision: Rev B	Sheet: 2 of 2
		PIPING SPECIFICATION FOR TOPSIDE		Material: Carbon Steel	Class: 150

Valves (see notes)

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp			
Needle	¾" - 1 ½"	VAG-3000-1-S201	-100C to 200C	Ball	2" - 14"	VES-150-2-C111	0C to 150C	Ball	2" - 14"	VES-150-3-C11G	-29C to 150C	Double Ball	¾" - 2"	VDE-150-2-C1F6	-29C to 200C			
		VAG-3000-1-S202	-100C to 400C			VES-150-2-C116				VES-150-3-C136	0C to 150C			VDE-150-2-C1F7	-29C to 340C			
		VAG-3000-1-S2F1	-100C to 200C			VES-150-2-C117				VES-150-3-C137				VDE-150-2-C1F8				
		VAG-3000-1-S2F2	-100C to 400C			VES-150-2-C130				VES-150-3-C13G				VGA-801-1-C101	-29C to 400C			
Ball	¾" - 1 ½"	VES-804-1-C101	0C to 150C			VES-150-2-C136				VES-150-3-C152	-29C to 150C	Gate	2" - 14"	VGA-150-1-C131				
		VES-804-1-C105	-29C to 210C			VES-150-2-C13F				VES-150-3-C153				VGA-150-2-C131				
		VES-804-2-C101	0C to 150C			VES-150-2-C13G				VES-150-3-C172				0C to 210C	Double Ball	3" - 8"	VDE-150-2-C11F	-29C to 150C
		VES-804-2-C105	-29C to 210C			VES-150-2-C150	-29C to 150C			VES-150-3-C173								
		VES-804-2-C1F5				VES-150-2-C152	0C to 150C			VES-150-3-C17G	-29C to 400C							
		VES-804-3-C105				VES-150-2-C170	0C to 210C			VES-150-3-C18G		0C to 150C	Globe	2" - 14"			VGL-150-1-C101	-29C to 400C
		VES-804-3-C1F5				VES-150-2-C172				VES-150-4-C154		0C to 150C					VGL-150-2-C1F1	
		VES-150-1-C110	-29C to 150C			VES-150-2-C17F				VES-150-4-C174	0C to 210C	VGL-150-2-C1F2						
	2" - 14"	VES-150-1-C130	0C to 150C			VES-150-2-C17G	Double Ball	¾" - 2"	VDE-150-2-C1F1	-29C to 150C	Check	2" - 14"	VRE-150-1-C111	0C to 150C				
		VES-150-1-C150	0C to 150C			VES-150-2-C18G			0C to 400C	VDE-150-2-C1F2			-29C to 400C					
		VES-150-1-C170	0C to 210C			VES-150-3-C116			-29C to 150C	VDE-150-2-C1F5			-29C to 200C	VRE-150-2-C115	-29C to 400C			
		VES-150-2-C110	-29C to 150C											VRE-150-2-C135	-29C to 210C			

Branch (see notes)

RUN SIZE	0.75	TEE
	1	RTEE TEE
	1.5	RTEE RTEE TEE
	2	SOC SOC SOC TEE
	3	SOC SOC SOC RTEE TEE
	4	SOC SOC SOC RTEE RTEE TEE
	6	SOC SOC SOC WOL RTEE RTEE TEE
	8	SOC SOC SOC WOL WOL RTEE RTEE TEE
	10	SOC SOC SOC WOL WOL WOL RTEE RTEE TEE
	12	SOC SOC SOC WOL WOL WOL RTEE RTEE TEE
	14	SOC SOC SOC WOL WOL WOL RTEE RTEE TEE
	0.75	1 1.5 2 3 4 6 8 10 12 14
	BRANCH SIZE	

WOL - Weldolet
TEE - Tee
RTEE - Red Tee
HC - Half Coupling
SOC - Sockolet

Notes

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges ≤ 1 1/2" may be used, if strictly necessary .
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: Inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc:		Revision:		Sheet	
									I-ET-3010.2Q-1200-200-P4X-001		Rev B		1 of 2	
PIPING SPECIFICATION FOR TOPSIDE									Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : 3.2 mm	
Services (see notes): F - Safety System and Flare; FG - Fuel Gas; PC - Process (Corrosive Hydrocarbon);									Material: Low Temp CS		Class: 150		Standard: B19	
									Pressure Rating (see notes)					
Temperature (°C)		-46	0	38	50	100	150	200	210					
Max Pressure (barg)		19.6	19.6	19.6	19.2	17.7	15.8	13.8	13.4					
Pipes and Fittings (see notes)														
Items		Code	Size	Wall	Class	Ends	Standard		Material					
Pipes	Pipe	T-105	½" - 1 ½"	S-160	-	PE	ASME B36.10	ASTM A333 Gr 6 SML						
			2"	XS										
			3" - 6"	STD										
			8" - 12"	S-20										
			14"	0.281"										
		T-106	16"	S-10		BE								
			18" - 20"	0.281"										
			24"	0.312"										
			26" - 28"	0.344"										
			30" - 32"	STD										
			34" - 38"	0.406"										
			40" - 42"	0.438"										
			44"	0.469"										
Fittings	90 Elbow	C01-04	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A350 Gr LF2 Cl 1						
	45 Elbow	C02-04												
	Tee	C03-04												
	Cross	C05-04												
	Coupling	C06-04												
	Cap	C11-04												
	Sockolet	C55-04												
	Red Tee	C04-04	¾" - 1 ½"			ASME B16.11								
	Red Coupling	C08-04												
	Weldolet	C12-04	2" - 20"	According to pipe	-	BE	ASME B16.9	ASTM A420 Gr WPL6						
	Cap	C22-05	2" - 40"											
	Cross	C24-05	2" - 44"											
	90 LR Elbow	C15-05												
	45 LR Elbow	C16-05												
	90 SR Elbow	C17-05												
	Tee	C20-05												
	Conc. Red	C18-05	3" - 44"											
	Ecc. Red	C19-05												
	Red Tee	C21-05												
Nipple	Straight Nipple	N-S137	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A333 Gr 6						
	Swage Conc Nipple	N-C105	¾" - 1 ½"			BLE x PSE	MSS SP-95	ASTM A420 Gr WPL6						
		N-C405	2" - 4"											
	Swage Ecc Nipple	N-E105	¾" - 1 ½"											
		N-E405	2" - 4"											
Flanges	Socket Weld (SW)	F-150-J3	½" - 1 ½"	According to pipe	Class 150	Raised Face	ASME B16.5	ASTM A350 Gr LF2 Class 1						
	Welding Neck (WN)	F-150-K3	2" - 24"				ASME B16.47 A							
			26" - 44"				-							
	Blind	F-150-L3	½" - 40"				ASME B16.5							
			1" - 24"				ASME B16.47 A							
			26" - 40"				ASME B16.47 A							
Gasket	Spiral-Wound	J-150-EH	½" - 40"	-	Class 150	Raised Face	ASME B16.20	AISI 316/graphite						
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni						
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	A193 B7, Zn-Ni						
Paddles	Figure-8 Blank	R8-150-RL	½" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48	Low Temp. Carbon Steel ASTM A516 70 + S5						
	Paddle Blank	RA-150-RL												
	Paddle Spacer	RE-150-RL												

[illegible]

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
25	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and standard material specification.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001	Revision: Rev B	Sheet 1 of 2			
		PIPING SPECIFICATION FOR TOPSIDE						Issued by: SRGE/ESUP	Code: ASME B31.3	Corr. Allow.: -			
Services (see notes): DA - Open Drain; HWU - Utility Heating Water; IW - De-Aerated Sea Water Injection; IWC - Aerated Sea Water Injection; PWH - Hot Fresh Water; SW - Aerated Sea Water; W - Industrial water;							Material: FRP	Class: 10 bar	Standard: B22				
Pressure Rating (see notes)													
Temperature (°C)	15	90											
Max Pressure (barg)	10	10											
Pipes and Fittings (see notes)													
Items		Code	Size	Wall	Class	Ends	Standard	Material					
Pipes	Pipe	T-404	1" - 36"	acc. manufact.	-	Bell-Spigot	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10 bar@90°C. SML					
			38"			Butt-Strap							
			40" - 48"			Bell-Spigot							
						Butt-Strap							
						Bell-Spigot							
Fittings	Plug	C09-36	1" - 1 1/2"	-	250	THD	ASME B16.15	ASTM B62 (UNS C83600)					
	Thd Saddle	C52-52	1" - 6"		-	-	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C					
	Flg Saddle	C51-52											
	Coupling	C06-52	1" - 40"	10 bar	BellSpigot								
	Tee	C20-52			According to pipe	Butt-Strap							
						BellSpigot							
						Butt-Strap							
						BellSpigot							
	90 LR Elbow	C15-52	1" - 48"		-	BellSpigot				10 bar	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C	
	45 LR Elbow	C16-52				Butt-Strap							
	FRP Ecc. Red.	C62-52	2" - 40"			BellSpigot							
						Butt-Strap							
Red Tee	C63-52	2" - 48"		BellSpigot									
				Butt-Strap									
FRP Conc. Red.	C61-52		2" - 48"	BellSpigot									
				Butt-Strap									
Blind	F-10-ET	1" - 40"		According to pipe		10 bar	Flat Face	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.				
Integral Flange	F-10-1T												
Gasket	Flat type	J-150-C3	1" - 40"	-	Class 150	Flat Face	ASME B16.21	Neoprene					
Stud & Nuts	Stud and Nuts	P-150-07	1/2" - 1 1/2"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni					
								A193 B7, Zn-Ni					
Bolt	2 x Hex Bolt	H-150-01	1/2" - 1 1/2"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7					
Paddles	Figure-8 Blank	R8-150-FP	1" - 14"	According to pipe	150	Flat Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 epoxi coated					
	Paddle Blank	RA-150-FP											
	Paddle Spacer	RE-150-FP											



Doc:
**I-ET-3010.2Q-1200-200-
P4X-001**

2 of 2

Material:	FR

Class:	10 bar

Standard:
B22

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Check	1" - 1 1/2"	VRE-150-1-U305	0C to 90C	Butterfly	6" - 20"	VBO-150-3-U364	0C to 75C	Gate	1" - 12"	VGA-150-1-U332	0C to 90C	Check	2" - 24"	VRE-150-1-U314	0C to 90C
Butterfly	6" - 20"	VBO-150-1-U204	0C to 75C		24" - 40"	VBO-150-3-U366				VGA-150-2-U332		Ball	4" - 10"	VES-150-1-U403	10C to 70C
	24" - 36"	VBO-150-1-U206	Ball	2" - 24"	VES-150-1-U310	0C to 90C	Globe	2" - 18"	VGL-150-1-U302	0C to 90C			2" - 3"	VES-250-1-U403	
	6" - 20"	VBO-150-2-U314		0C to 90C					2" - 4"				VES-150-1-U316	VGL-150-2-U302	
	24" - 48"	VBO-150-2-U316							2" - 24"	VES-150-2-U310					

[illegible]

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
31	Electrical conductivity/resistivity shall be tested in accordance with ASTM D257. For components requiring electrical conductivity due to external charge generating mechanisms, the surface resistivity shall be 10^5 ohms or less. For components requiring electrical conductivity due to internal charge generating mechanisms, the volume resistivity shall be 10^3 ohm-meter or less.
32	GRP piping and fittings must be certified according to level L3 IMO A753 fire endurance test.
33	GRP piping and fittings must be supplied with UV protection.
34	GRP piping and fittings must have Type Approval certified by Classification Societies.
35	Pipes and fittings must be supplied by the same manufacturer, that also shall be responsible for design, fabrication, assembly , inspection, test, repair and comissioning.
36	Plain washers must be used to assembly flanged connections.
37	See Annex H for Minimum Requirements for FRP pipes and fittings.
39	The bolt torque limit shall be informed by manufacturer.
74	Bell-spigot adhesived joint is allow able for all diameter in open drain (DA) service, but the maximum pressure shall be 4 bar.
105	Whenever non-metallcs valves are used, the spec's pressure-temperature limits may be reduced according annex A (item A.7.6.2).
112	For pipes and fittings may be used as alternative vinyl ester resins. See Annex H.
115	Gaskets shall not be used to assembly butterfly valves API 609 category A, unless required required by the valve manufacturer.
143	Piping materiall shall be certified and approved by Classification Society for the intended service.
149	It shall be used internal electrical conductivity liner (C-glass, single veil) for pipes and fittings
160	This spec is not for open drain in classified area, except for overboard.

 PETROBRAS		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2										
		PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -								
		Services (see notes): ADW - Aerated Dilution Water; DA - Open Drain; DW - Distilled Water; HWU - Utility Heating Water; IW - De-Aerated Sea Water Injection; IWC - Aerated Sea Water Injection; PWH - Hot Fresh Water; SW - Aerated Sea Water; W - Industrial water;								Material: FRP		Class: 16 bar		Standard: B23								
Pressure Rating (see notes)																						
Temperature (°C)		5		90																		
Max Pressure (barg)		16		16																		
Pipes and Fittings (see notes)																						
Items		Code	Size	Wall	Class	Ends	Standard	Material														
Pipes	Pipe	T-406	1" - 48"	acc. manufact.	-	Bell-Spigot	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16 bar@90°C. SML														
			Butt-Strap																			
Fittings	Plug	C09-36	1" - 1 ½"	-	250	THD	ASME B16.15	ASTM B62 (UNS C83600)														
	Thd Saddle	C52-54			-	-																
	Flg Saddle	C51-54	1" - 8"																			
	Coupling	C06-54	1" - 48"	According to pipe	16 bar	BellSpigot	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C														
	90 LR Elbow	C15-54																				
	45 LR Elbow	C16-54																				
	Tee	C20-54	1" - 52"	-										Butt-Strap								
	FRP Stub End	C64-54																				
	45 LR Elbow	C16-54													1" - 60"							
	90 LR Elbow	C15-54	1" - 64"	According to pipe										Butt-Strap								
	FRP Conc. Red.	C61-54	2" - 48"												-	BellSpigot						
	FRP Ecc. Red.	C62-54																				
	Red Tee	C63-54		2" - 52"										Butt-Strap								
	FRP Conc. Red.	C61-54	2" - 64"																			
	FRP Ecc. Red.	C62-54																				
Flanges	Blind	F-16-LT	1" - 52"	According to pipe										16 bar	Raised Face	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.					
	Backing Flange	F-16-YV														Drilling acc. B16.5/B16.47 CL150						
Gasket	Flat type	J-150-P3	1" - 48"	-										Class 150	Raised Face	ASME B16.21	Neoprene					
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni														
								A193 B7, Zn-Ni														
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7														
Paddles	Figure-8 Blank	R8-150-RP	1" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 epoxi coated														
	Paddle Blank	RA-150-RP																				
	Paddle Spacer	RE-150-RP																				

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200- P4X-001		Revision: Rev B	Sheet 1 of 2													
			PIPING SPECIFICATION FOR TOPSIDE						Issued by: SRGE/ESUP	Code: ASME B31.3	Corr. Allow.: -													
Services (see notes): PCW - Produced water;									Material: FRP	Class: 16 bar	Standard: B26													
Pressure Rating (see notes)																								
Temperature (°C)		5	93	100	110																			
Max Pressure (barg)		16	16	11.2	6.4																			
Pipes and Fittings (see notes)																								
Items		Code	Size	Wall	Class	Ends	Standard	Material																
Pipes	Pipe	T-408	1" - 2"	acc. manufact.	-	Bell-Spigot	ISO 14692	FRP MDA cured Bisphenol A Epoxy resin with fiberglass type E or E-CR. SML																
			2 ½"			Butt-Strap																		
			3" - 36"			Bell-Spigot																		
						Butt-Strap																		
						Butt-Strap																		
Fittings	Plug	C09-36	1" - 1 ½"	-	250	THD	ASME B16.15	ASTM B62 (UNS C83600)																
	Thd Saddle	C52-56	1" - 6"		-	-	ISO 14692	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.																
	Flg Saddle	C51-56																						
	Coupling	C06-56	1" - 36"	According to pipe																				
	90 LR Elbow	C15-56																						
	45 LR Elbow	C16-56																						
	Tee	C20-56																						
	FRP Stub End	C64-56		-																				
	FRP Conc. Red.	C61-56	2" - 36"																					
	FRP Ecc. Red.	C62-56																						
	Red Tee	C63-56																						
	Flanges	Blind	F-16-EU	1" - 36"	According to pipe	16 bar	Flat Face	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150	FRP - MDA cured Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR.															
		Backing Flange	F-16-YV				Raised Face	Drilling acc. B16.5/B16.47 CL150	ASTM A105 Epoxy coated															
Gasket	Flat type	J-150-PC	1" - 36"	-	Class 150	Raised Face	ASME B16.21	Multidirectional Expanded PTFE																
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni																
								A193 B7, Zn-Ni																
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7																
Paddles	Figure-8 Blank	R8-150-RP	1" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 epoxi coated																
	Paddle Blank	RA-150-RP	16" - 36"																					
	Paddle Spacer	RE-150-RP																						

[illegible]

Branch (see notes)

[illegible]

WQI - Welolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

FSDL - Flg Saddle

TSDL - Thd Saddle

Notes

1	On the spec valve list, it may have valve codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according to the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts, nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
31	Electrical conductivity/resistivity shall be tested in accordance with ASTM D257. For components requiring electrical conductivity due to external charge generating mechanisms, the surface resistivity shall be 10^5 ohms or less. For components requiring electrical conductivity due to internal charge generating mechanisms, the volume resistivity shall be 10^3 ohm-meter or less.
32	GRP piping and fittings must be certified according to level L3 IMO A753 fire endurance test.
33	GRP piping and fittings must be supplied with UV protection.
34	GRP piping and fittings must have Type Approval certified by Classification Societies.
35	Pipes and fittings must be supplied by the same manufacturer, that also shall be responsible for design, fabrication, assembly, inspection, test, repair and commissioning.
36	Plain washers must be used to assembly flanged connections.
37	See Annex H for Minimum Requirements for FRP pipes and fittings.
39	The bolt torque limit shall be informed by manufacturer.
66	It's not allowed to use overlap joints (adhesive joint covered by fiber-resin layers).
105	Whenever non-metallic valves are used, the spec's pressure-temperature limits may be reduced according to annex A (item A.7.6.2).
143	Piping material shall be certified and approved by Classification Society for the intended service.

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200- P4X-001		Revision: Rev B	Sheet 1 of 2								
			PIPING SPECIFICATION FOR TOPSIDE						Issued by: SRGE/ESUP	Code: ASME B31.3	Corr. Allow.: -								
Services (see notes): C12 - DBNPA Biocide; CN - Sodium Hypochlorite;									Material: FRP	Class: 16 bar	Standard: B27								
Pressure Rating (see notes)																			
Temperature (°C)		5	85																
Max Pressure (barg)		16	16																
Pipes and Fittings (see notes)																			
Items		Code	Size	Wall	Class	Ends	Standard	Material											
Pipes	Pipe	T-409	1" - 6"	acc. manufact.	-	Butt-Strap	ISO 14692	FRP - Epoxy vinyl ester resins (bisphenol A brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16 bar@85°C. SML											
						Bell-Spigot													
Fittings	Thd Saddle	C52-57	1" - 1 ½"	-	-	-	ISO 14692	FRP - Epoxy vinyl ester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C											
	Flg Saddle	C51-57	1" - 4"																
	Coupling	C06-57	1" - 6"	According to pipe	16 bar	BellSpigot													
	90 LR Elbow	C15-57				Butt-Strap													
	45 LR Elbow	C16-57				BellSpigot													
	Tee	C20-57				Butt-Strap													
	Red Tee	C63-57				BellSpigot													
	FRP Conc. Red.	C61-57	2" - 6"	-		Butt-Strap													
	FRP Ecc. Red.	C62-57				BellSpigot													
						Butt-Strap													
						BellSpigot													
						Butt-Strap													
						BellSpigot													
Flanges	Blind	F-16-ES	1" - 6"	According to pipe	16 bar	Flat Face	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150	FRP - Epoxy vinyl ester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR. Suitable for 85°C.											
	Integral Flange	F-16-1S																	
Gasket	Flat type	J-150-CC	1" - 6"	-	Class 150	Flat Face	ASME B16.21	Multidirectional Expanded PTFE											
Stud & Nuts	Stud and Nuts	P-150-07	½" - ¾"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni											
								A193 B7, Zn-Ni											
Paddles	Figure-8 Blank	R8-150-FP	1" - 6"	According to pipe	150	Flat Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 epoxi coated											
	Paddle Blank	RA-150-FP	8"																
	Paddle Spacer	RE-150-FP																	



Doc:
I-ET-3010.2Q-1200-200-
P4X-001

Sheet:
2 of 2

Material:	FR

Class:	16 bar

Standard:
B27

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Ball	1" - 6"	VES-150-2-U600	0C to 70C	Check	2" - 6"	VRE-150-2-U666	0C to 70C								

RUN SIZE	1	TEE								
	1.5	RTEE	TEE							
	2	RTEE	RTEE	TEE						
	2.5	RTEE	RTEE	RTEE	TEE					
	3	FSDL	RTEE	RTEE	RTEE	TEE				
	4	FSDL	FSDL	FSDL	FSDL	FSDL	TEE			
	6	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	TEE		
		1	1.5	2	2.5	3	4	6		
		BRANCH SIZE								

TEE - Tee

HC - Half Coupling

SOC - Sockolet

FSDL - Flg Saddle

TSDL - Thd Saddle

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
31	Electrical conductivity/resistivity shall be tested in accordance with ASTM D257. For components requiring electrical conductivity due to external charge generating mechanisms, the surface resistivity shall be 10 ⁴ 5 ohms or less. For components requiring electrical conductivity due to internal charge generating mechanisms, the volume resistivity shall be 10 ³ 3 ohm-meter or less.
32	GRP piping and fittings must be certified according to level L3 IMO A753 fire endurance test.
33	GRP piping and fittings must be supplied with UV protection.
34	GRP piping and fittings must have Type Approval certified by Classification Societies.
35	Pipes and fittings must be supplied by the same manufacturer, that also shall be responsible for design, fabrication, assembly, inspection, test, repair and commissioning.
36	Plain washers must be used to assembly flanged connections.
37	See Annex H for Minimum Requirements for FRP pipes and fittings.
39	The bolt torque limit shall be informed by manufacturer.
66	It's not allowed to use overlap joints (adhesive joint covered by fiber-resin layers).
105	Whenever non-metallics valves are used, the spec's pressure-temperature limits may be reduced according annex A (item A.7.6.2).
143	Piping material shall be certified and approved by Classification Society for the intended service.

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc:		Revision:		Sheet					
								I-ET-3010.2Q-1200-200-P4X-001		Rev B		1 of 2					
PIPING SPECIFICATION FOR TOPSIDE								Issued by:	Code:	Corr. Allow.:							
								SRGE/ESUP	ASME B31.3	-							
Services (see notes):								Material:	Class:	Standard:							
W - Industrial water;								FRP	20 bar	B28							
Pressure Rating (see notes)																	
Temperature (°C)		5	38	50	90												
Max Pressure (barg)		19.6	19.6	19.2	18												
Pipes and Fittings (see notes)																	
Items		Code	Size	Wall	Class	Ends	Standard	Material									
Pipes	Pipe	T-410	¾" - 2"	acc. manufact.	-	Butt-Strap	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25 bar@90°C. SML									
			1" - 2"			Bell-Spigot											
			2 ½"			Butt-Strap											
			3" - 36"			Bell-Spigot											
						Butt-Strap											
						Bell-Spigot											
						Butt-Strap											
Fittings	Plug	C09-36	¾" - 1 ½"	-	250	THD	ASME B16.15	ASTM B62 (UNS C83600)									
	Thd Saddle	C52-64	¾" - 6"		-	-	ISO 14692						FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C				
	Flg Saddle	C51-64	¾" - 28"		25 bar	BellSpigot											
	Coupling	C06-64				Butt-Strap											
	FRP Stub End	C64-64		BellSpigot													
	90 LR Elbow	C15-64	¾" - 40"	According to pipe		Butt-Strap											
	45 LR Elbow	C16-64				BellSpigot											
	Tee	C20-64				Butt-Strap											
	FRP Stub End	C64-64				BellSpigot											
	FRP Conc. Red.	C61-64				1" - 40"		-	Butt-Strap								
	FRP Ecc. Red.	C62-64	BellSpigot														
			Butt-Strap														
			BellSpigot														
	Flanges	Blind	F-20-LT	1" - 40"	According to pipe	20 bar	Raised Face	ASTM D4024 - Drilling acc. B16.5/B16.47 CL300	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.								
		Backing Flange	F-20-YV					ASTM D4024 - Drilling acc. B16.5/B16.47 CL150									
				Drilling acc. B16.5/B16.47 CL150				ASTM A105 Epoxy coated									
Gasket	Flat type	J-150-P3	¾" - 40"	-	Class 150	Raised Face	ASME B16.21	Neoprene									
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni									
								A193 B7, Zn-Ni									
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7									
Paddles	Figure-8 Blank	R8-150-RP	1" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 epoxi coated									
	Paddle Blank	RA-150-RP															
	Paddle Spacer	RE-150-RP															



Doc:
I-ET-3010.2Q-1200-200-
P4X-001

Sheet:

2 of 2

Material:	FR

Standard:
B28

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Needle	1" - 1 1/2"	VAG-3000-1-S201	-100C to 200C												
Butterfly	2" - 20"	VBO-250-1-U291	0C to 75C	Butterfly	6" - 20"	VBO-150-2-C151	-29C to 150C	Ball	1" - 1 1/2"	VES-150-1-C100	-29C to 100C	Globe	2" - 20"	VGL-150-1-C101	-29C to 400C
	24" - 36"	VBO-150-2-C153			6" - 20"	VBO-150-3-C121				VES-803-1-C101				VGL-150-2-C101	
	6" - 20"	VBO-150-2-C111	-29C to 150C		24" - 36"	VBO-150-3-C123	-29C to 240C		2" - 36"	VES-150-1-C110	-29C to 150C	Check	2" - 40"	VRE-150-1-C111	0C to 150C
	24" - 40"	VBO-150-2-C113	-29C to 200C							VES-150-3-C117				VRE-150-2-C135	-29C to 210C

[illegible]

SOC - Sockolet

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
31	Electrical conductivity/resistivity shall be tested in accordance with ASTM D257. For components requiring electrical conductivity due to external charge generating mechanisms, the surface resistivity shall be 10 ⁵ ohms or less. For components requiring electrical conductivity due to internal charge generating mechanisms, the volume resistivity shall be 10 ³ ohm-meter or less.
32	GRP piping and fittings must be certified according to level L3 IMO A753 fire endurance test.
33	GRP piping and fittings must be supplied with UV protection.
34	GRP piping and fittings must have Type Approval certified by Classification Societies.
35	Pipes and fittings must be supplied by the same manufacturer, that also shall be responsible for design, fabrication, assembly, inspection, test, repair and commissioning.
36	Plain washers must be used to assembly flanged connections.
37	See Annex H for Minimum Requirements for FRP pipes and fittings.
39	The bolt torque limit shall be informed by manufacturer.
105	Whenever non-metallics valves are used, the spec's pressure-temperature limits may be reduced according annex A (item A.7.6.2).
112	For pipes and fittings may be used as alternative vinyl ester resins. See Annex H.
115	Gaskets shall not be used to assembly butterfly valves API 609 category A, unless required required by the valve manufacturer.
149	It shall be used internal electrical conductivity liner (C-glass, single veil) for pipes and fittings

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2					
			PIPING SPECIFICATION FOR TOPSIDE								Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -			
Services (see notes): F - Safety System and Flare; IW - De-Aerated Sea Water Injection; PC - Process (Corrosive Hydrocarbon); PCW - Produced water;										Material: CS Inconel Clad.		Class: 150		Standard: B30				
Pressure Rating (see notes)																		
Temperature (°C)		-20	0	38	50	100	150	200	240									
Max Pressure (barg)		19.6	19.6	19.6	19.2	17.7	15.8	13.8	12.4									
Pipes and Fittings (see notes)																		
Items		Code	Size	Wall	Class	Ends	Standard		Material									
Pipes	Pipe	T-203	½" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19		ASTM B444 Gr 1 (UNS N06625) SML									
		T-102	2" - 4"	0.375"		BE	ASME B36.10	API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)										
			6" - 8"	0.438"				API 5L Gr B PSL 1 WLD (HFW or SAW)										
			10"					API 5L Gr B PSL 1 WLD SAW										
			12" - 14"															
			16" - 20"															
			24"															
26" - 30"																		
Fittings	90 Elbow	C01-33	½" - 1 ½"	-	3000	SW	ASME B16.11		ASTM B366 (UNS N06625)									
	45 Elbow	C02-33					MSS SP-97											
	Tee	C03-33					ASME B16.11											
	Cross	C05-33					MSS SP-97											
	Coupling	C06-33					ASME B16.9											
	Cap	C11-33																
	Sockolet	C55-33																
	Red Tee	C04-33	¾" - 1 ½"	According to pipe	-	BE								ASTM A234 Gr WPB				
	Red Coupling	C08-33																
	Weldolet	C12-33																
	90 LR Elbow	C15-33																
	45 LR Elbow	C16-33																
	90 SR Elbow	C17-33																
	Tee	C20-33																
	Cap	C22-33																
	Cross	C24-33																
	Ecc. Red	C19-33																
	Red Tee	C21-33																
	Conc. Red	C18-33																
	45 LR Elbow	C16-03																
	Conc. Red	C18-03																
	Ecc. Red	C19-03																
	Cross	C24-03																
	90 LR Elbow	C15-03																
	90 SR Elbow	C17-03																
	Tee	C20-03																
	Red Tee	C21-03																
	Cap	C22-03																
Nipple	Straight Nipple	N-S139	½" - 1 ½"	According to pipe	-	PBE	ASTM A733		ASTM B444 Gr 1 (UNS N06625)									
	Swage Conc Nipple	N-C133	¾" - 1 ½"			BLE x PSE	MSS SP-95		ASTM B366 (UNS N06625)									
		N-C433	2" - 3"			PBE												
	Swage Ecc Nipple	N-E133	¾" - 1 ½"			BLE x PSE												
		N-E433	2" - 3"															
Flanges	Socket Weld (SW)	F-150-JL	½" - 1 ½"	According to pipe	Class 150	Raised Face	ASME B16.5		ASTM B564 (UNS N06625)									
	Welding Neck (WN)	F-150-KB	6" - 24"				ASME B16.47 A		ASTM A105 Cladded									
			26" - 30"				ASME B16.5											
	Blind	F-150-LB	4" - 24"				ASME B16.47 A											
			26" - 30"				ASME B16.20											
Gasket	Spiral-Wound	J-150-EM	½" - 30"	-	Class 150	Raised Face	ASME B16.20		Inconel/graphite									
Stud & Nuts	Stud and Nuts	P-150-07	½" - 1 ¼"	-	-	-	ASME B1.1		A194 Gr 2H, Zn-Ni									
									A193 B7, Zn-Ni									
Bolt	2 x Hex Bolt	H-150-01	½" - 1 ½"	According to pipe	-	-	ASME B1.1		ASTM A193 Gr B7									
Paddles	Figure-8 Blank	R8-150-RI	½" - 14"	According to pipe	150	Raised Face ASME B16.5	ASME B16.48		Carbon Steel ASTM A516 GR60 with Inconel 625 layer									
	Paddle Blank	RA-150-RI																
	Paddle Spacer	RE-150-RI																

SOC - Sockolet

process data log

Item	Quantity	Unit	Price	Total
1. Material				
2. Labor				
3. Subcontract				
4. Other				
5. Contingency				
6. Profit				
7. Tax				
8. Insurance				
9. Bond				
10. Other				
11. Total				

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2		
									PIPING SPECIFICATION FOR TOPSIDE						Issued by : SRGE/ESUP
Services (see notes): F - Safety System and Flare;										Material: SS 310H		Class: 150		Standard: B50	
Pressure Rating (see notes)															
Temperature (°C)		38	100	200	300	400	500	538							
Max Pressure (barg)		19	16.6	13.8	10.2	6.5	2.8	1.4							
Pipes and Fittings (see notes)															
Items		Code	Size	Wall	Class	Ends	Standard		Material						
Pipes	Pipe	T-321	½" - 1 ½"	S-40S	-	PE	ASME B36.19	ASTM A312 TP 310H SML							
			BE			ASTM A312 TP 310H WLD									
												2" - 24"			
												26" - 46"			
												48"			
52" - 56"	0.438"														
Fittings	90 Elbow	C01-62	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F310H							
	45 Elbow	C02-62													
	Tee	C03-62													
	Cross	C05-62													
	Coupling	C06-62													
	Cap	C11-62													
	Socketlet	C55-62													
	Red Tee	C04-62	¾" - 1 ½"	-	-	-	ASME B16.11	-							
	Red Coupling	C08-62													
	Weldolet	C12-62													
	90 SR Elbow	C17-63	2" - 24"	-	-	-	-	ASME B16.9	-						
	90 LR Elbow	C15-63													
	45 LR Elbow	C16-63	2" - 48"	According to pipe	-	BE	ASME B16.9	-							
	Tee	C20-63													
	Cap	C22-63													
	Cross	C24-63													
	Conc. Red	C18-63													
	Ecc. Red	C19-63													
	Red Tee	C21-63													
Nipple	Straight Nipple	N-S141	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A312 TP310H							
	Socket Weld (SW)	F-300-JW	½" - 1 ½"	According to pipe	Class 300	Raised Face	ASME B16.5	ASTM A182 Gr F310H							
Welding Neck (WN)	F-300-KW	2" - 56"	-												
Blind	F-300-LW	½" - 56"													
Gasket	Spiral-Wound	J-300-E2	½" - 56"	-	Class 300	Raised Face	ASME B16.20	AISI 316/MICA (high temp.)							
Stud & Nuts	Stud and Nuts	P-300-10	½" - 1 ¾"	-	-	-	ASME B1.1	A453 660							



Doc:	I-ET-3010.2Q-1200-200-P4X-001

Sheet:

2 of 2

Material:	SS 310H

Class:	150

Standard:
B50

Type	Size	CODE	Temp		Type	Size	CODE	Temp		Type	Size	CODE	Temp		Type	Size	CODE	Temp

	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0	31.5	32.0	32.5	33.0	33.5	34.0	34.5	35.0	35.5	36.0	36.5	37.0	37.5	38.0	38.5	39.0	39.5	40.0	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0	44.5	45.0	45.5	46.0	46.5	47.0	47.5	48.0	48.5	49.0	49.5	50.0	50.5	51.0	51.5	52.0	52.5	53.0	53.5	54.0	54.5	55.0	55.5	56.0	56.5	57.0	57.5	58.0	58.5	59.0	59.5	60.0	60.5	61.0	61.5	62.0	62.5	63.0	63.5	64.0	64.5	65.0	65.5	66.0	66.5	67.0	67.5	68.0	68.5	69.0	69.5	70.0	70.5	71.0	71.5	72.0	72.5	73.0	73.5	74.0	74.5	75.0	75.5	76.0	76.5	77.0	77.5	78.0	78.5	79.0	79.5	80.0	80.5	81.0	81.5	82.0	82.5	83.0	83.5	84.0	84.5	85.0	85.5	86.0	86.5	87.0	87.5	88.0	88.5	89.0	89.5	90.0	90.5	91.0	91.5	92.0	92.5	93.0	93.5	94.0	94.5	95.0	95.5	96.0	96.5	97.0	97.5	98.0	98.5	99.0	99.5	100.0

WOL - Weldolet
TEE - Tee
RTEE - Red Tee
HC - Half Coupling
SOC - Sockolet

3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
7	Welding and Welding Inspection activities shall follow the requirements of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
51	Stainless Steel external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
117	The flange assembly shall be done with two nuts and one washer per bolt side. Circular washer shall be according to ASTM F436.
118	The spec is limited for application above flare service platform.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES	Doc: I-ET-3010.2Q-1200-200-P4X-001	Revision: Rev B	Sheet 1 of 2
		PIPING SPECIFICATION FOR TOPSIDE		Issued by: SRGE/ESUP	Code: ASME B31.3

Services (see notes): HF - Hot Fluid; HWP - Process Heating Water; S - Steam; SC - Steam Condensate;	Material: Carbon Steel	Class: 300	Standard: C4

Pressure Rating (see notes)											
Temperature (°C)	0	38	50	100	150	200	250	300	350		
Max Pressure (barg)	51.1	51.1	50.1	46.6	45.1	43.8	41.9	39.8	37.6		

Pipes and Fittings (see notes)													
Items		Code	Size	Wall	Class	Ends	Standard	Material					
Pipes	Pipe	T-102	½" - 1 ½"	XS	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML					
			2" - 6"	STD		BE		API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)					
			8"	S-30									
			10" - 12"	STD									
			14"	S-40									
			16" - 18"	XS									
			20"	0.562"					API 5L Gr B PSL 1 WLD (HFW or SAW)				
			24"	S-40									
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A105					
	45 Elbow	C02-02											
	Tee	C03-02											
	Cross	C05-02											
	Coupling	C06-02											
	Cap	C11-02											
	Sockolet	C55-02											
	Red Tee	C04-02	¾" - 1 ½"	According to pipe	-	BE	ASME B16.11	ASTM A234 Gr WPB					
	Red Coupling	C08-02											
	Weldolet	C12-02	1" - 10"	According to pipe	-	BE	ASME B16.9	ASTM A234 Gr WPB					
	90 LR Elbow	C15-03											
	45 LR Elbow	C16-03											
	90 SR Elbow	C17-03											
	Tee	C20-03											
	Cap	C22-03											
	Cross	C24-03											
	Conc. Red	C18-03											
	Ecc. Red	C19-03											
	Red Tee	C21-03											
Nipple	Straight Nipple	N-S120	½" - 1 ½"						According to pipe	-	PBE	ASTM A733	API 5L Gr B PSL 1 seamless
	Swage Conc Nipple	N-C103	¾" - 1 ½"								BLE x PSE	MSS SP-95	ASTM A234 Gr WPB
		N-C403	2" - 4"										
	Swage Ecc Nipple	N-E103	¾" - 1 ½"										
		N-E403	2" - 4"										
Flanges	Socket Weld (SW)	F-300-J2	½" - 1 ½"	According to pipe	Class 300	Raised Face	ASME B16.5	ASTM A105					
	Welding Neck (WN)	F-300-K2	2" - 24"				-						
	Blind	F-300-L2	½" - 24"				ASME B16.5						
			3" - 24"										
Gasket	Spiral-Wound	J-300-EH	½" - 24"	-	Class 300	Raised Face	ASME B16.20	AISI 316/graphite					
Stud & Nuts	Stud and Nuts	P-300-01	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H					
							A193 B7						
Bolt	2 x Hex Bolt	H-300-01	½" - 1 ⅞"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7					
Paddles	Figure-8 Blank	R8-300-RC	½" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60					
	Paddle Blank	RA-300-RC	12" - 24"										
	Paddle Spacer	RE-300-RC											



OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES

Doc:

I-ET-3010.2Q-1200-200-
P4X-001

Revision:

100

Sheet:

2 of 2

PIPING SPECIFICATION FOR TOPSIDE

Material:	Carbon Steel

Class: **3**

Standard:
C4

Valves (see notes)

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Check	½" - 1 ½"	VRE-800-1-C103	-29C to 400C	Butterfly	24"	VBO-300-2-C133	-29C to 240C	Ball	2" - 24"	VES-300-3-C162	0C to 210C	Gate	2" - 24"	VGA-300-2-C131	-29C to 400C
		VRE-800-2-C103			VES-300-3-C161	VGA-300-2-C132									
Needle	½" - 1 ½"	VAG-3000-1-S201	-100C to 200C		24"	VBO-300-3-C163		Ball	2" - 24"	Gate	¾" - 1 ½"	VGA-801-1-C102	-29C to 400C	Globe	2" - 18"
		VAG-3000-1-S202	-100C to 400C	VES-300-2-C160	0C to 210C	VGA-801-2-C101	VGL-300-2-C102								
Butterfly	3" - 20"	VBO-300-2-C111	-29C to 150C		VES-300-3-C116										
	24"	VBO-300-2-C113	0C to 100C		VES-300-3-C117				VGA-300-1-C132		VRE-300-2-C135	-29C to 210C			
		4" - 20"	VBO-300-2-C133	-29C to 240C											

Branch (see notes)

[illegible]

WOL - Weldolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

Notes

1	On the spec valve list, it may have valve codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
7	Welding and Welding Inspection activities shall follow the requirements of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: Inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACF requirement for carbon steel which shall follow I-ET-3010 XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2		
			PIPING SPECIFICATION FOR TOPSIDE								Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : 1.6 mm
Services (see notes): F - Safety System and Flare; G - Glycol; GL - Refrigerated Liquefied Petroleum Gases in Low Temperature; P - Process (non-corrosive hydrocarbon);										Material: Low Temp CS		Class: 300		Standard: C6	
Pressure Rating (see notes)															
Temperature (°C)		-46	0	38	50	100	150	200							
Max Pressure (barg)		51.1	51.1	51.1	50.1	46.6	45.1	43.8							
Pipes and Fittings (see notes)															
Items		Code	Size	Wall	Class	Ends	Standard		Material						
Pipes	Pipe	T-105	½" - 1 ½"	S-160	-	PE	ASME B36.10	ASTM A333 Gr 6 SML							
			2" - 6"	STD		BE									
			8" - 10"	S-30											
			12"	0.344"											
		T-106	14"	STD					ASTM A671 Gr CC60 Class 22 WLD						
			16"												
			18"	0.406"											
			20"	0.438"											
24"	S-30														
Fittings	90 Elbow	C01-04	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A350 Gr LF2 Cl 1							
	45 Elbow	C02-04													
	Tee	C03-04													
	Cross	C05-04													
	Coupling	C06-04													
	Cap	C11-04													
	Sockolet	C55-04	¾" - 1 ½"	According to pipe	-	BE	MSS SP-97	ASME B16.11							
	Red Tee	C04-04													
	Red Coupling	C08-04	2" - 10"				ASME B16.9	ASTM A420 Gr WPL6							
	Weldolet	C12-04													
	90 LR Elbow	C15-05													
	45 LR Elbow	C16-05													
	90 SR Elbow	C17-05													
	Tee	C20-05													
	Cap	C22-05	3" - 24"												
	Cross	C24-05													
	Conc. Red	C18-05													
	Ecc. Red	C19-05					ASTM A733		ASTM A333 Gr 6						
	Red Tee	C21-05													
Nipple	Straight Nipple	N-S137	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A420 Gr WPL6							
	Swage Conc Nipple	N-C105	¾" - 1 ½"			BLE x PSE	MSS SP-95								
		N-C405	2" - 4"												
	Swage Ecc Nipple	N-E105	¾" - 1 ½"												
		N-E405	2" - 4"												
Flanges	Socket Weld (SW)	F-300-J3	½" - 1 ½"	According to pipe	Class 300	Raised Face	ASME B16.5	ASTM A350 Gr LF2 Class 1							
	Welding Neck (WN)	F-300-K3	2" - 24"				-								
	Blind	F-300-L3	½" - 24"												
Gasket	Spiral-Wound	J-300-EH	½" - 24"	-	Class 300	Raised Face	ASME B16.20	AISI 316/graphite							
Stud & Nuts	Stud and Nuts	P-300-07	½" - 1 ½"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni							
							A193 B7, Zn-Ni								
Bolt	2 x Hex Bolt	H-300-01	½" - 1 ⅝"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7							
Paddles	Figure-8 Blank	R8-300-RL	½" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48	Low Temp. Carbon Steel ASTM A516 70 + S5							
	Paddle Blank	RA-300-RL	12" - 24"												
	Paddle Spacer	RE-300-RL													

WOL - Weldolet
TEE - Tee
RTEE - Red Tee
HC - Half Coupling
SOC - Sockolet

CS-1, Supplemental 1, 11112 Requirement for carbon steel which shall follow 1.2.1 CS-10/91, 1200 010 1 1/1 CS-1, and coating for bolts and nuts shall follow 0200 100 11112 0.

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc:		Revision:		Sheet	
								I-ET-3010.2Q-1200-200-P4X-001		Rev B		1 of 2	
PIPING SPECIFICATION FOR TOPSIDE								Issued by:	Code:		Corr. Allow.:		
								SRGE/ESUP	ASME B31.3		-		
Services (see notes): DO - Carbon Dioxide (DRY);								Material:	Class:		Standard:		
								Galv. CS	300		C8		
Pressure Rating (see notes)													
Temperature (°C)		-18	0	38	54								
Max Pressure (barg)		51.1	51.1	51.1	49.8								
Pipes and Fittings (see notes)													
Items		Code	Size	Wall	Class	Ends	Standard		Material				
Pipes	Pipe	T-102	½" - 1 ½"	XS	-	PE	ASME B36.10		API 5L Gr B PSL 1 SML				
			2" - 6"	STD		BE			API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)				
			8"	S-20									
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	3000	SW	ASME B16.11		ASTM A105				
	45 Elbow	C02-02											
	Tee	C03-02											
	Cross	C05-02											
	Coupling	C06-02											
	Union	C10-02											
	Cap	C11-02											
	Socketlet	C55-02	¾" - 1 ½"	-	3000	SW	ASME B16.11		ASTM A105				
	Red Tee	C04-02											
	Red Coupling	C08-02											
	Weldolet	C12-02	1" - 3"	According to pipe	-	BE	ASME B16.9		ASTM A234 Gr WPB				
	90 LR Elbow	C15-03											
	45 LR Elbow	C16-03											
	90 SR Elbow	C17-03											
	Tee	C20-03											
	Cap	C22-03											
	Cross	C24-03											
	Conc. Red	C18-03											
	Ecc. Red	C19-03											
Red Tee	C21-03												
Nipple	Straight Nipple	N-S120	½" - 1 ½"	According to pipe	-	PBE	ASTM A733		API 5L Gr B PSL 1 seamless				
	Swage Conc Nipple	N-C103	¾" - 1 ½"										
		N-C403	2" - 4"										
	Swage Ecc Nipple	N-E103	¾" - 1 ½"										
		N-E403	2" - 4"										
Flanges	Welding Neck (WN)	F-300-K2	2" - 8"	According to pipe	Class 300	Raised Face	ASME B16.5		ASTM A105				
	Blind	F-300-L2	½" - 8"										
			3" - 8"										
Gasket	Flat type	J-300-PA	½" - 8"	-	Class 300	Raised Face	ASME B16.21		Aramid/NBR				
Stud & Nuts	Stud and Nuts	P-300-07	½" - ⅞"	-	-	-	ASME B1.1		A194 Gr 2H, Zn-Ni				
									A193 B7, Zn-Ni				
Bolt	2 x Hex Bolt	H-300-01	½" - 1 ⅞"	According to pipe	-	-	ASME B1.1		ASTM A193 Gr B7				
Paddles	Figure-8 Blank	R8-300-RC	½" - 8"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48		Carbon Steel ASTM A516 GR60				

		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES				Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B	Sheet: 2 of 2																																																																
			PIPING SPECIFICATION FOR TOPSIDE						Material: Galv. CS	Class: 300	Standard: C8																																																															
Valves (see notes)																																																																										
Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp																																																															
Check	½" - 1 ½"	VRE-800-1-C102	-29C to 400C	Ball	1" - 1 ½"	VES-300-1-C1F0	-29C to 150C	Ball	1" - 1 ½"	VES-300-2-D2F0	0C to 150C																																																															
Check	2" - 8"	VRE-300-1-C111	0C to 150C																																																																							
Branch (see notes)																																																																										
RUN SIZE <table><tr><td>0.5</td><td>TEE</td></tr><tr><td>0.75</td><td>RTEE</td><td>TEE</td></tr><tr><td>1</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>1.5</td><td>RTEE</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>2</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>TEE</td></tr><tr><td>3</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>RTEE</td><td>TEE</td></tr><tr><td>4</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>6</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>WOL</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>8</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>WOL</td><td>WOL</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>0.5</td><td>0.75</td><td>1</td><td>1.5</td><td>2</td><td>3</td><td>4</td><td>6</td><td>8</td></tr></table> BRANCH SIZE								0.5	TEE	0.75	RTEE	TEE	1	RTEE	RTEE	TEE	1.5	RTEE	RTEE	RTEE	TEE	2	SOC	SOC	SOC	SOC	TEE	3	SOC	SOC	SOC	SOC	RTEE	TEE	4	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE	6	SOC	SOC	SOC	SOC	WOL	RTEE	RTEE	TEE	8	SOC	SOC	SOC	SOC	WOL	WOL	RTEE	RTEE	TEE	0.5	0.75	1	1.5	2	3	4	6	8	WOL - Weldolet			
0.5	TEE																																																																									
0.75	RTEE	TEE																																																																								
1	RTEE	RTEE	TEE																																																																							
1.5	RTEE	RTEE	RTEE	TEE																																																																						
2	SOC	SOC	SOC	SOC	TEE																																																																					
3	SOC	SOC	SOC	SOC	RTEE	TEE																																																																				
4	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE																																																																			
6	SOC	SOC	SOC	SOC	WOL	RTEE	RTEE	TEE																																																																		
8	SOC	SOC	SOC	SOC	WOL	WOL	RTEE	RTEE	TEE																																																																	
0.5	0.75	1	1.5	2	3	4	6	8																																																																		
								TEE - Tee																																																																		
								RTEE - Red Tee																																																																		
								HC - Half Coupling																																																																		
								SOC - Sockolet																																																																		
Notes																																																																										
1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.																																																																									
2	See Annex A for valves requirements and general selection criteria.																																																																									
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.																																																																									
4	See Annex C for instruments, drains and vents typical piping arrangement.																																																																									
5	Flanges ≤ 1 1/2" may be used, if strictly necessary .																																																																									
6	See Annex E for Isolation gasket specifications.																																																																									
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.																																																																									
13	This specification (Class 300-C8) shall be applied to the CO2 distribution system downstream of connection point 600 (E8), provided that its entire length (Class 300) is free from valves or blocking devices.																																																																									
52	Piping, fittings and accessories must be galvanized after spool fabrication according to ASTM A123 with minimum coating thickness of100µm.																																																																									
63	From -18°C to 0°C, API 5L gr B shall be furnished normalized.																																																																									
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.																																																																									

		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES							Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2								
		PIPING SPECIFICATION FOR TOPSIDE									Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: 1.6 mm						
Services (see notes): AM - Amine; BG - Inert Gas; C1 - Chemical Injection (non-corrosive); D - Diesel; FG - Fuel Gas; G - Glycol; IW - De-Aerated Sea Water Injection; P - Process (non-corrosive hydrocarbon); RF - Refrigerant Fluid; SA - Service Compressed Air (utility Air); SN - Start-up Nitrogen; W - Industrial water;											Material: Carbon Steel		Class: 300		Standard: C10						
Pressure Rating (see notes)																					
Temperature (°C)		-29	0	38	50	100	150	200	240												
Max Pressure (barg)		51.1	51.1	51.1	50.1	46.6	45.1	43.8	42.2												
Pipes and Fittings (see notes)																					
Items		Code	Size	Wall	Class	Ends	Standard			Material											
Pipes	Pipe	T-102	½" - 1 ½"	S-160	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML													
			2" - 12"	STD		API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)															
			14"	0.406"		API 5L Gr B PSL 1 WLD (HFW or SAW)															
			16"	0.469"																	
			18"	XS																	
			20"	0.562"																	
			24"	S-40		API 5L Gr B PSL 1 WLD SAW															
			26"	0.625"																	
			28"	0.688"																	
30" - 32"	0.750"																				
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	6000	SW	ASME B16.11		ASTM A105												
	45 Elbow	C02-02																			
	Tee	C03-02																			
	Cross	C05-02																			
	Coupling	C06-02																			
	Cap	C11-02																			
	Socketlet	C55-02																			
	Red Tee	C04-02	¾" - 1 ½"	According to pipe	-	BE	ASME B16.11														
	Red Coupling	C08-02																			
	Weldolet	C12-02	2" - 14"				MSS SP-97														
	90 LR Elbow	C15-03	2" - 32"				ASME B16.9		ASTM A234 Gr WPB												
	45 LR Elbow	C16-03																			
	90 SR Elbow	C17-03																			
	Tee	C20-03																			
	Cap	C22-03																			
	Cross	C24-03																			
	Conc. Red	C18-03											3" - 32"	-							
	Ecc. Red	C19-03																			
	Red Tee	C21-03																			
Nipple	Straight Nipple	N-S120	1" - 1 ½"	According to pipe	-	PBE	ASTM A733		API 5L Gr B PSL 1 seamless												
	Swage Conc Nipple	N-C103	¾" - 1 ½"			BLE x PSE	MSS SP-95		ASTM A234 Gr WPB												
		N-C403	2" - 4"																		
	Swage Ecc Nipple	N-E103	¾" - 1 ½"																		
		N-E403	2" - 4"																		
Flanges	Socket Weld (SW)	F-300-J2	½" - 1 ½"	According to pipe	Class 300	Raised Face	ASME B16.5		ASTM A105												
	Welding Neck (WN)	F-300-K2	2" - 24"				ASME B16.47 A														
			26" - 32"				-														
	Blind	F-300-L2	½" - 32"				ASME B16.5														
Gasket	Spiral-Wound	J-300-EH	½" - 32"	-	Class 300	Raised Face	ASME B16.20		AISI 316/graphite												
Stud & Nuts	Stud and Nuts	P-300-07	½" - 1 ⅞"	-	-	-	ASME B1.1		A194 Gr 2H, Zn-Ni												
									A193 B7, Zn-Ni												
Bolt	2 x Hex Bolt	H-300-01	½" - 1 ⅞"	According to pipe	-	-	ASME B1.1		ASTM A193 Gr B7												
Paddles	Figure-8 Blank	R8-300-RC	½" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48		Carbon Steel ASTM A516 GR60												
	Paddle Blank	RA-300-RC	12" - 32"																		
	Paddle Spacer	RE-300-RC																			

WOL - Weldolet
TEE - Tee
RTEE - Red Tee
HC - Half Coupling
SOC - Sockolet

Access data log

[illegible]

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200- P4X-001		Revision: Rev B		Sheet 1 of 2	
			PIPING SPECIFICATION FOR TOPSIDE							Issued by: SRGE/ESUP		Code: ASME B31.3	
Services (see notes): ADW - Aerated Dilution Water; PC - Process (Corrosive Hydrocarbon); PCW - Produced water;								Material: Organic Coat CS		Class: 300		Standard: C11	
Pressure Rating (see notes)													
Temperature (°C)		0		38		50		100		150			
Max Pressure (barg)		51.1		51.1		50.1		46.6		45.4			
Pipes and Fittings (see notes)													
Items		Code	Size	Wall	Class	Ends	Standard		Material				
Pipes	Pipe	T-102	3" - 6"	STD	-	BE	ASME B36.10		API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)				
			8"	S-20									
			10"	0.279"									
			12"	0.312"									
			14"	0.344"					API 5L Gr B PSL 1 WLD (HFW or SAW)				
			16"	0.406"									
			18"	0.469"									
			20"	XS									
			24"	S-40									
Fittings	Weldolet	C12-02	3" - 8"	According to pipe	-	BE	MSS SP-97		ASTM A105				
	90 LR Elbow	C15-03	3" - 24"				ASME B16.9		ASTM A234 Gr WPB				
	45 LR Elbow	C16-03											
	90 SR Elbow	C17-03											
	Tee	C20-03											
	Cap	C22-03											
	Cross	C24-03											
	Conc. Red	C18-03	4" - 24"				ASME B16.5		ASTM A105				
	Ecc. Red	C19-03											
Red Tee	C21-03												
Flanges	Welding Neck (WN)	F-300-K2	3" - 24"	According to pipe	Class 300	Raised Face	ASME B16.5		ASTM A105				
	Blind	F-300-L2					-						
Gasket	Flat type	J-300-PC	3" - 24"	-	Class 300	Raised Face	ASME B16.21		Multidirectional Expanded PTFE				
	Stud and Nuts	P-300-07	½" - 1 ¼"	-	-	-	ASME B1.1		A194 Gr 2H, Zn-Ni				
Bolt	2 x Hex Bolt	H-300-01	½" - 1 ⅝"	According to pipe	-	-	ASME B1.1		ASTM A193 Gr B7				
	Figure-8 Blank	R8-300-RP	3" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48		Carbon Steel ASTM A516 GR60 epoxi coated				
Paddles	Paddle Blank	RA-300-RP	12" - 24"										
	Paddle Spacer	RE-300-RP											

Valves (see notes)

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp		
Check	-	VRE-300-1-D205	-46C to 150C	Ball	3" - 20"	VES-300-2-D2F0	0C to 150C	Ball	3" - 20"	VES-300-3-D217	-30C to 150C	Check	3" - 20"	VGL-300-2-D201	-46C to 150C		
Needle	-	VAG-300-1-D201	-50C to 150C			VES-300-1-D210	-30C to 150C			VES-300-3-D253				VRE-300-1-D211	0C to 150C		
Butterfly	4" - 20"	VBO-300-2-D211	-46C to 150C			VES-300-1-D216				VES-300-3-D25G				VRE-300-1-D212	-46C to 150C		
		VBO-300-2-D251				VES-300-2-D110	0C to 120C	Gate	3" - 20"	VGA-300-1-D231	-50C to 150C			VRE-300-2-D212			
		VBO-300-3-D261				VES-300-2-D210	-30C to 150C			VGA-300-2-D231				VRE-300-2-D215			
Ball	-	VES-300-1-D200	-30C to 150C			VES-300-2-D21F	Globe	3" - 18"	VGL-300-1-D201	-46C to 150C	VRE-300-2-D235						
		VES-300-2-D200	0C to 150C			VES-300-3-D216			VGL-300-2-D101	0C to 150C							

Branch (see notes)

3 TEE

4 RTEE TEE

6 RTEE RTEE TEE

8 WOL RTEE RTEE TEE

10 WOL WOL RTEE RTEE TEE

12 WOL WOL RTEE RTEE RTEE TEE

14 WOL WOL WOL RTEE RTEE RTEE TEE

16 WOL WOL WOL RTEE RTEE RTEE TEE

18 WOL WOL WOL RTEE RTEE RTEE TEE

20 WOL WOL WOL RTEE RTEE RTEE TEE

24 WOL WOL WOL RTEE RTEE RTEE TEE

3

4

6

8

10

12

14

16

18

20

24

BRANCH SIZE

WOL - Weldolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

Notes

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
6	See Annex E for isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
50	Piping, fittings and acessories shall be organic coated internally according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
151	Pipe NPS 2 and smaller shall be used only for short-length branch connections, where the coating application is feasible.

[illegible]

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to <u>specify it according the design premisses.</u>
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1/2"$ may be used, if strictly necessary .
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
26	See Annex A for valve casting qualification requirements.
27	See I-ET-3010.XX-1200-940-P4X-001 to check the piping spec range application for H2S and CO2 service.
48	Superduplex external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
122	Inspection of pipe and piping components shall follow ASTM A923 requirements.
123	The application of this pipe specification for PCW - Produced Water is conditioned to maximum oxygen content 20 ppb and max temperature 120°C.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2					
			PIPING SPECIFICATION FOR TOPSIDE							Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -			
Services (see notes): AM - Amine; CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); PC - Process (Corrosive Hydrocarbon); PCW - Produced water;									Material: Duplex		Class: 300		Standard: C16				
Pressure Rating (see notes)																	
Temperature (°C)		-46	0	38	50	100	150										
Max Pressure (barg)		51.7	51.7	51.7	51.7	50.7	45.9										
Pipes and Fittings (see notes)																	
Items		Code	Size	Wall	Class	Ends	Standard		Material								
Pipes	Pipe	T-301	½" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S31803) SML									
			2" - 8"														
		T-302	10" - 20"			ASTM A928 (UNS S31803 Cl 1 or 3) WLD											
			22"														
			24"														
			26" - 28"	0.375"													
			30"	0.406"													
			32"	0.438"													
Fittings	90 Elbow	C01-27	½" - 1 ½"	-	3000	SW	ASME B16.11		ASTM A182 Gr F51 (UNS S31803)								
	45 Elbow	C02-27															
	Tee	C03-27															
	Cross	C05-27															
	Coupling	C06-27															
	Cap	C11-27															
	Sockolet	C55-27					MSS SP-97										
	Red Tee	C04-27	¾" - 1 ½"	-	3000	SW	ASME B16.11										
	Red Coupling	C08-27					MSS SP-97										
	Weldolet	C12-27	2" - 14"	According to pipe	-	BE	ASME B16.9		ASTM A815 (UNS S31803)								
	90 LR Elbow	C15-29															
	45 LR Elbow	C16-29															
	90 SR Elbow	C17-29															
	Tee	C20-29															
	Cap	C22-29															
	Cross	C24-29															
	Conc. Red	C18-29	3" - 32"				ASME B16.9										
	Ecc. Red	C19-29															
	Red Tee	C21-29															
Nipple	Straight Nipple	N-S128	½" - 1 ½"	According to pipe	-	PBE	ASTM A733		ASTM A790 (UNS S31803)								
	Swage Conc Nipple	N-C129	¾" - 1 ½"			BLE x PSE	MSS SP-95		ASTM A815 (UNS S31803)								
		N-C429	2" - 4"														
	Swage Ecc Nipple	N-E129	¾" - 1 ½"														
		N-E429	2" - 4"														
Flanges	Socket Weld (SW)	F-300-JG	½" - 1 ½"	According to pipe	Class 300	Raised Face	ASME B16.5		ASTM A182 Gr F51								
	Welding Neck (WN)	F-300-KG	2" - 24"				ASME B16.47 A										
			26" - 32"														
		Blind	F-300-LG				½" - 32"	-									
Gasket	Spiral-Wound	J-300-EL	½" - 32"	-	Class 300	Raised Face	ASME B16.20		Duplex/graphite								
Stud & Nuts	Stud and Nuts	P-300-07	½" - 1 ½"	-	-	-	ASME B1.1		A194 Gr 2H, Zn-Ni								
							ASME B1.1		A193 B7, Zn-Ni								
Bolt	2 x Hex Bolt	H-300-01	½" - 1 ⅝"	According to pipe	-	-	ASME B1.1		ASTM A193 Gr B7								
Paddles	Figure-8 Blank	R8-300-RD	½" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48		Duplex Stainless Steel ASTM A240 UNS31803								
	Paddle Blank	RA-300-RD															
	Paddle Spacer	RE-300-RD															

Valves (see notes)															
Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Check	½" - 1 ½"	VRE-800-1-D202	-46C to 150C	Ball	2" - 32"	VES-300-1-D230	-46C to 150C	Ball	2" - 32"	VES-300-2-D272	-46C to 150C	Double Ball	6" - 32"	VES-300-4-D274	-46C to 150C
		VRE-800-2-D202				VES-300-1-D250	-30C to 150C			VES-300-2-D27F				VDE-300-2-D201	-30C to 150C
Needle	½" - 1 ½"	VAG-3000-1-D202	-46C to 150C			VES-300-1-D260	0C to 150C			VES-300-2-D27G		-30C to 150C	VDE-300-2-D202	-46C to 150C	
		VAG-3000-1-D2F2				VES-300-1-D270	-46C to 150C			VES-300-3-D216			VDE-300-2-D203		
Butterfly	6" - 20"	VBO-300-2-D211	-46C to 150C			VES-300-2-D210	-30C to 150C			VES-300-3-D217		-30C to 150C	VDE-300-2-D204	-30C to 150C	
	24" - 32"	VBO-300-2-D213				VES-300-2-D216				VES-300-3-D21G			VDE-300-2-D2F1		
	6" - 20"	VBO-300-2-D251				VES-300-2-D21F				VES-300-3-D226		VDE-300-2-D2F2	-30C to 150C		
	24" - 32"	VBO-300-2-D253				VES-300-2-D21G				VES-300-3-D227		VDE-300-2-D2F3			
Ball	½" - 1 ½"	VES-801-1-D201	-30C to 150C			VES-300-2-D220	0C to 150C			VES-300-3-D236		0C to 150C	VDE-300-2-D2F4	-46C to 150C	
		VES-801-1-D202	-46C to 150C			VES-300-2-D226				VES-300-3-D237			-46C to 150C		
		VES-801-1-D205	-30C to 150C			VES-300-2-D230	VES-300-3-D23G			-30C to 150C					
		VES-801-2-D201	-30C to 150C			VES-300-2-D236	VES-300-3-D252				-30C to 150C				
		VES-801-2-D202	-46C to 150C			VES-300-2-D23F	VES-300-3-D253			0C to 150C					
		VES-801-2-D205	-30C to 150C			VES-300-2-D23G	VES-300-3-D25G				-46C to 150C				
		VES-801-2-D2F1	-30C to 150C			VES-300-2-D250	VES-300-3-D262			-46C to 150C					
		VES-801-2-D2F2	-46C to 150C			VES-300-2-D252	VES-300-3-D263				-46C to 150C				
		VES-801-2-D2F5				VES-300-2-D25F	VES-300-3-D272								
		VES-801-3-D205				VES-300-2-D25G	VES-300-3-D273			-46C to 150C					
		VES-801-3-D2F5				VES-300-2-D260	VES-300-3-D27G								
		2" - 32"	VES-300-1-D210			-30C to 150C	VES-300-2-D262			0C to 150C	VES-300-4-D254	-30C to 150C			
			VES-300-1-D220	0C to 150C	VES-300-2-D270	-46C to 150C	VES-300-4-D264	0C to 150C							
		Gate	2" - 32"	VGA-801-1-D201	-50C to 150C	Double Ball	3" - 8"	VDE-300-2-D21F	-30C to 150C						
VGA-300-1-D231	-46C to 150C														
VGA-300-2-D231				VGL-300-1-D201											
VGL-300-2-D201	VGL-300-2-D2F1														
Globe	2" - 18"	VRE-300-1-D211	0C to 150C	Check	2" - 32"	VRE-300-2-D212	-46C to 150C								
		VRE-300-2-D215													
		VRE-300-2-D235													

Branch (see notes)

[illegible]

Notes

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary .
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
26	See Annex A for valve casting qualification requirements.
27	See I-ET-3010.XX-1200-940-P4X-001 to check the piping spec range application for H2S and CO2 service.
29	Duplex stainless steel external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
58	This spec for Amine service is applicable for piping downstream the booster pump.
82	Use this Spec after SG (free water separator).
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
122	Inspection of pipe and piping components shall follow ASTM A923 requirements.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACF requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200- P4X-001		Revision: Rev B		Sheet 1 of 2			
		PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -	
Services (see notes): ADW - Aerated Dilution Water; SW - Aerated Sea Water;										Material: FRP		Class: 25 bar		Standard: C23	
Pressure Rating (see notes)															
Temperature (°C)		5	90												
Max Pressure (barg)		25	25												
Pipes and Fittings (see notes)															
Items		Code	Size	Wall	Class	Ends	Standard	Material							
Pipes	Pipe	T-410	1" - 36"	acc. manufact.	-	Butt-Strap Bell-Spigot	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25 bar@90°C. SML							
	Plug	C09-36	1" - 1 ½"	-	250	THD	ASME B16.15	ASTM B62 (UNS C83600)							
Fittings	Thd Saddle	C52-64	1" - 6"		-	-	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C							
	Flg Saddle	C51-64													
	Coupling	C06-64													
	FRP Stub End	C64-64													
	90 LR Elbow	C15-64	1" - 36"	25 bar	BellSpigot										
	45 LR Elbow	C16-64			Butt-Strap										
					BellSpigot										
					Butt-Strap										
			BellSpigot												
	Tee	C20-64	Butt-Strap												
	FRP Stub End	C64-64	BellSpigot												
	FRP Conc. Red.	C61-64	2" - 36"		-									Butt-Strap	
BellSpigot															
Butt-Strap															
BellSpigot															
FRP Ecc. Red.	C62-64	Butt-Strap													
Red Tee	C63-64	BellSpigot													
Flanges	Blind	F-25-LT	1" - 36"	According to pipe	25 bar	Raised Face	ASTM D4024 - Drilling acc. B16.5/B16.47 CL300	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.							
	Backing Flange	F-25-YV					Drilling acc. B16.5/B16.47 CL300	ASTM A105 Epoxy coated							
Gasket	Flat type	J-300-P3	1" - 36"	-	Class 300	Raised Face	ASME B16.21	Neoprene							
Stud & Nuts	Stud and Nuts	P-300-07	½" - 1 ⅝"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni							
								A193 B7, Zn-Ni							
Bolt	2 x Hex Bolt	H-300-01	½" - 1 ⅞"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7							
Paddles	Figure-8 Blank	R8-300-RP	1" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 epoxi coated							
	Paddle Blank	RA-300-RP													
	Paddle Spacer	RE-300-RP													

Valves (see notes)

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Butterfly	4" - 36"	VBO-300-2-U311	0C to 90C	Ball	2" - 32"	VES-300-1-U316	0C to 90C	Check	2" - 28"	VRE-300-1-U311	0C to 90C	Check	2" - 28"	VRE-300-1-U315	0C to 90C
	24" - 36"	VBO-300-2-U313		Gate	1" - 24"	VGA-300-1-U331				VRE-300-1-U312				VRE-300-2-U335	
Ball	1" - 1 1/2"	VES-300-1-U300	0C to 90C	Globe	2" - 24"	VGL-300-1-U301	0C to 90C								

Branch (see notes)

RUN SIZE

1	TEE
1.5	RTEE TEE
2	RTEE RTEE TEE
2.5	FSDL RTEE RTEE TEE
3	FSDL RTEE RTEE RTEE TEE
4	FSDL FSDL RTEE RTEE RTEE TEE
5	FSDL FSDL FSDL RTEE RTEE TEE
6	FSDL FSDL FSDL FSDL RTEE RTEE TEE
8	FSDL FSDL FSDL FSDL FSDL RTEE RTEE TEE
10	FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE TEE
12	FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE RTEE TEE
14	FSDL FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE RTEE TEE
16	FSDL FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE RTEE RTEE TEE
18	FSDL FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE RTEE RTEE TEE
20	FSDL FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE RTEE RTEE RTEE TEE
24	FSDL FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE RTEE RTEE RTEE RTEE TEE
28	FSDL FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE RTEE RTEE RTEE RTEE RTEE TEE
28	FSDL FSDL FSDL FSDL FSDL FSDL FSDL RTEE RTEE RTEE RTEE RTEE RTEE RTEE TEE

BRANCH SIZE

1	1.5	2	2.5	3	4	6	8	10	12	14	16	18	20	24	26	28

WOL - Weldolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

Notes

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
31	Electrical conductivity/resistivity shall be tested in accordance with ASTM D257. For components requiring electrical conductivity due to external charge generating mechanisms, the surface resistivity shall be 10^5 ohms or less. For components requiring electrical conductivity due to internal charge generating mechanisms, the volume resistivity shall be 10^3 ohm-meter or less.
32	GRP piping and fittings must be certified according to level L3 IMO A753 fire endurance test.
33	GRP piping and fittings must be supplied with UV protection.
34	GRP piping and fittings must have Type Approval certified by Classification Societies.
35	Pipes and fittings must be supplied by the same manufacturer, that also shall be responsible for design, fabrication, assembly, inspection, test, repair and comissioning.
36	Plain washers must be used to assembly flanged connections.
37	See Annex H for Minimum Requirements for FRP pipes and fittings.
39	The bolt torque limit shall be informed by manufacturer.
105	Whenever non-metallics valves are used, the spec's pressure-temperature limits may be reduced according annex A (item A.7.6.2).
112	For pipes and fittings may be used as alternative vinyl ester resins. See Annex H.
115	Gaskets shall not be used to assembly butterfly valves API 609 category A, unless required required by the valve manufacturer.
149	It shall be used internal electrical conductivity liner (C-glass, single veil) for pipes and fittings

THIS DOCUMENT IS PROPERTY OF PETROBRAS, BEING ITS USE PROHIBITED OUTSIDE ITS PURPOSE

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2			
			PIPING SPECIFICATION FOR TOPSIDE							Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -	
Services (see notes): W - Industrial water;										Material: FRP		Class: 25 bar		Standard: C28	
Pressure Rating (see notes)															
Temperature (°C)		5		90											
Max Pressure (barg)		25		25											
Pipes and Fittings (see notes)															
Items		Code	Size	Wall	Class	Ends	Standard		Material						
Pipes	Pipe	T-410	1" - 2"	acc. manufact.	-	Bell-Spigot	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25 bar@90°C. SML							
			2 ½"			Butt-Strap									
			3" - 36"			Bell-Spigot									
			40"			Butt-Strap									
						Bell-Spigot									
						Butt-Strap									
						Bell-Spigot									
Fittings	Plug	C09-36	1" - 1 ½"	-	250	THD	ASME B16.15	ASTM B62 (UNS C83600)							
	Thd Saddle	C52-64	1" - 6"		-	-	ISO 14692	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C							
	Flg Saddle	C51-64	1" - 28"		25 bar	BellSpigot									
	Coupling	C06-64	1" - 40"	According to pipe		Butt-Strap									
	FRP Stub End	C64-64				BellSpigot									
	90 LR Elbow	C15-64				Butt-Strap									
	45 LR Elbow	C16-64				BellSpigot									
	Tee	C20-64	2" - 40"	-		Butt-Strap									
	FRP Stub End	C64-64				BellSpigot									
	FRP Conc. Red.	C61-64				Butt-Strap									
	FRP Ecc. Red.	C62-64				BellSpigot									
	Red Tee	C63-64				Butt-Strap									
	Flanges	Blind	F-25-LT	1" - 40"	According to pipe	25 bar	Raised Face	ASTM D4024 - Drilling acc. B16.5/B16.47 CL300	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.						
		Backing Flange	F-25-YV					Drilling acc. B16.5/B16.47 CL300	ASTM A105 Epoxy coated						
Gasket	Flat type	J-300-P3	1" - 40"	-	Class 300	Raised Face	ASME B16.21	Neoprene							
Stud & Nuts	Stud and Nuts	P-300-07	½" - 1 ⅝"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni							
								A193 B7, Zn-Ni							
Bolt	2 x Hex Bolt	H-300-01	½" - 1 ⅝"	According to pipe	-	-	ASME B1.1	ASTM A193 Gr B7							
Paddles	Figure-8 Blank	R8-300-RP	1" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60 epoxi coated							
	Paddle Blank	RA-300-RP	12" - 40"												
	Paddle Spacer	RE-300-RP													

Valves (see notes)											
Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Butterfly	3" - 20"	VBO-300-2-C111	-29C to 150C	Ball	2" - 36"	VES-300-1-C110	-29C to 150C	Globe	2" - 20"	VGL-300-1-C101	-29C to 400C
	24" - 40"	VBO-300-2-C113	0C to 100C			VES-300-2-C116			2" - 24"	VRE-300-1-C111	0C to 150C
Ball	1" - 1 1/2"	VES-300-1-C100	-29C to 100C	Gate	2" - 36"	VGA-300-2-C131	-29C to 400C	Check	2" - 28"	VRE-300-1-U312	0C to 90C
										VRE-300-2-U335	0C to 90C

Branch (see notes)											
RUN SIZE	0.75	TEE									
	1	RTEE	TEE								
	1.5	FSDL	FSDL	RTEE	TEE						
	2	FSDL	FSDL	FSDL	RTEE	TEE					
	2.5	FSDL	FSDL	FSDL	FSDL	RTEE	TEE				
	3	FSDL	FSDL	FSDL	FSDL	FSDL	RTEE	TEE			
	4	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	RTEE	TEE		
	6	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	RTEE	TEE		
	8	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	RTEE	TEE	
	10	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	RTEE	TEE
	12	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	RTEE
	14	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	16	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	18	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	20	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	24	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	26	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	28	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	30	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	32	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	34	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	36	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
	40	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL	FSDL
BRANCH SIZE											
	0.75	1	1.5	2	2.5	3	4	6	8	10	12
										14	16
										18	20
										24	26
										28	30
										32	34
										36	40

WOL - Weldolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

Notes	
1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
31	Electrical conductivity/resistivity shall be tested in accordance with ASTM D257. For components requiring electrical conductivity due to external charge generating mechanisms, the surface resistivity shall be 10 ⁶ ohms or less. For components requiring electrical conductivity due to internal charge generating mechanisms, the volume resistivity shall be 10 ¹³ ohm-meter or less.
32	GRP piping and fittings must be certified according to level L3 IMO A753 fire endurance test.
33	GRP piping and fittings must be supplied with UV protection.
34	GRP piping and fittings must have Type Approval certified by Classification Societies.
35	Pipes and fittings must be supplied by the same manufacturer, that also shall be responsible for design, fabrication, assembly, inspection, test, repair and comissioning.
36	Plain washers must be used to assembly flanged connections.
37	See Annex H for Minimum Requirements for FRP pipes and fittings.
39	The bolt torque limit shall be informed by manufacturer.
105	Whenever non-metallics valves are used, the spec's pressure-temperature limits may be reduced according annex A (item A.7.6.2).
112	For pipes and fittings may be used as alternative vinyl ester resins. See Annex H.
115	Gaskets shall not be used to assembly butterfly valves API 609 category A, unless required required by the valve manufacturer.
149	It shall be used internal electrical conductivity liner (C-glass, single veil) for pipes and fittings

 PETROBRAS		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2						
		PIPING SPECIFICATION FOR TOPSIDE								Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -				
Services (see notes): ADW - Aerated Dilution Water; IW - De-Aerated Sea Water Injection; PC - Process (Corrosive Hydrocarbon); PCW - Produced water;										Material: CS Inconel Clad.		Class: 300		Standard: C30				
Pressure Rating (see notes)																		
Temperature (°C)		-20	0	38	50	100	150	200										
Max Pressure (barg)		51.1	51.1	51.1	50.1	46.6	45.1	43.8										
Pipes and Fittings (see notes)																		
Items		Code	Size	Wall	Class	Ends	Standard		Material									
Pipes	Pipe	T-203	½" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19		ASTM B444 Gr 1 (UNS N06625) SML									
			T-102			2" - 4"	ASME B36.10	API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)										
						6" - 8"												
		10"																
		12" - 14"																
		16"																
		18"																
		20"																
		24"																
		26"																
		28"																
		30"																
Fittings	90 Elbow	C01-33	½" - 1 ½"	-	3000	SW	ASME B16.11		ASTM B366 (UNS N06625)									
	45 Elbow	C02-33																
	Tee	C03-33																
	Cross	C05-33																
	Coupling	C06-33																
	Cap	C11-33																
	Sockolet	C55-33																
	Red Tee	C04-33	¾" - 1 ½"	MSS SP-97														
	Red Coupling	C08-33		ASME B16.11														
	90 LR Elbow	C15-33		ASME B16.9														
	45 LR Elbow	C16-33	2" - 3"	According to pipe	-	BE	ASME B16.9							ASTM A105				
	90 SR Elbow	C17-33																
	Tee	C20-33																
	Cap	C22-33																
	Cross	C24-33																
	Ecc. Red	C19-33	3"				MSS SP-97							ASTM A234 Gr WPB				
	Red Tee	C21-33																
	Conc. Red	C18-33	3" - 4"															
	Weldolet	C12-02	4" - 14"															
	45 LR Elbow	C16-03	4" - 30"															
	Conc. Red	C18-03	6" - 30"				ASME B16.9		ASTM A234 Gr WPB									
	Ecc. Red	C19-03																
	Cross	C24-03																
	90 LR Elbow	C15-03																
	90 SR Elbow	C17-03																
	Tee	C20-03	10" - 30"															
	Red Tee	C21-03																
	Cap	C22-03																
	Nipple	Straight Nipple	N-S139				½" - 1 ½"	According to pipe	-	PBE	ASTM A733		ASTM B444 Gr 1 (UNS N06625)					
Swage Conc Nipple		N-C133	¾" - 1 ½"				MSS SP-95				ASTM B366 (UNS N06625)							
		N-C433	2" - 3"															
Swage Ecc Nipple		N-E133	¾" - 1 ½"															
		N-E433	2" - 3"															
Flanges	Socket Weld (SW)	F-300-JL	½" - 1 ½"	According to pipe	Class 300	Raised Face	ASME B16.5		ASTM B564 (UNS N06625)									
	Welding Neck (WN)	F-300-KB	6" - 24"				ASME B16.47 A		ASTM A105 Cladded									
			26" - 30"				-		ASTM B564 (UNS N06625)									
	Blind	F-300-LL	½" - 3"				-		ASTM A105 Cladded									
		F-300-LB	4" - 30"															
Gasket	Spiral-Wound	J-300-EM	½" - 30"	-	Class 300	Raised Face	ASME B16.20		Inconel/graphite									
Stud & Nuts	Stud and Nuts	P-300-07	½" - 1 5/8"	-	-	-	ASME B1.1		A194 Gr 2H, Zn-Ni									
Bolt	2 x Hex Bolt	H-300-01	½" - 1 1/8"	According to pipe	-	-	ASME B1.1		ASTM A193 Gr B7									
Paddles	Figure-8 Blank	R8-300-RI	½" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48		Carbon Steel ASTM A516 GR60 with Inconel 625 layer									
	Paddle Blank	RA-300-RI																
	Paddle Spacer	RE-300-RI																

[illegible]

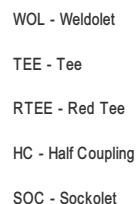
1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requirements of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
9	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and API 5L requirements. Applicable to both base material and WPS qualification.
27	See I-ET-3010.XX-1200-940-P4X-001 to check the piping spec range application for H2S and CO2 service.
42	Piping, fittings and accessories shall have internal Inconel® 625 cladding according to I-ET-3010.00-1200-955-P4X-001 - Welding.
103	Use this Spec after choke valve up to SG (free water separator).
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrosbras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
159	Weld overlay shall fully extend on flange face up to groove outer diameter or raised face outer diameter. The minimum thickness for inconel layer to be mesured after machining. This note is valid for piping and valve flanges.

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2											
								PIPING SPECIFICATION FOR TOPSIDE					Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -						
Services (see notes): AM - Amine; CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); D - Diesel; DO - Carbon Dioxide (DRY); FG - Fuel Gas; G - Glycol; H - Hydraulic Fluid; P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);								Material: SS 316/316L		Class: 600		Standard: E3											
Pressure Rating (see notes)																							
Temperature (°C)		-100	38	50	100	150	200																
Max Pressure (barg)		99.3	99.3	96.2	84.4	77.0	71.3																
Pipes and Fittings (see notes)																							
Items		Code	Size	Wall	Class	Ends	Standard	Material															
Pipes	Pipe	T-322	½" - 1 ½"	S-40S	-	PE	ASME B36.19	ASTM A312 TP 316/316L SML															
		T-323	2" - 8"	-		BE	ASME B36.10/B36.19	ASTM A358 Type 316/316L Cl 1 or 3 WLD															
			10" - 12"						S-80S														
			14"						0.562"														
			16"						0.625"														
			18"						0.688"														
			20"						0.750"														
			24"						0.875"														
			26"						0.938"														
			28"						1.000"														
30"	1.062"																						
32"	1.188"																						
Fittings	90 Elbow	C01-43	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F316/316L															
	45 Elbow	C02-43																					
	Tee	C03-43																					
	Cross	C05-43																					
	Coupling	C06-43																					
	Cap	C11-43																					
	Sockolet	C55-43																					
	Red Tee	C04-43																					
	Red Coupling	C08-43	¾" - 1 ½"	According to pipe	-	BE	ASME B16.9	ASTM A403 Gr WP316/316L															
	Weldolet	C12-43												2" - 14"									
	90 LR Elbow	C15-44																					
	45 LR Elbow	C16-44																					
	90 SR Elbow	C17-44																					
	Tee	C20-44																					
	Cap	C22-44																					
	Cross	C24-44																					
	Conc. Red	C18-44																					
	Ecc. Red	C19-44																					
	Red Tee	C21-44	3" - 32"																				
Nipple	Straight Nipple	N-S145	½" - 1 ½"											According to pipe	-	PBE	ASTM A733	ASTM A312 TP316/316L					
	Swage Conc Nipple	N-C144	¾" - 1 ½"														MSS SP-95	ASTM A403 Gr WP316/316L					
		N-C444	2" - 4"																				
	Swage Ecc Nipple	N-E144	¾" - 1 ½"																				
		N-E444	2" - 4"																				
Flanges	Socket Weld (SW)	F-600-JX	½" - 1 ½"	According to pipe	Class 600	Raised Face	ASME B16.5	ASTM A182 Gr F316/316L															
	Welding Neck (WN)	F-600-KX	2" - 24"				ASME B16.47 A																
		Blind	F-350-4X			½" - 3"	max 350 bar							-	ISO 6162-1								
	Hyd One-Piece Flange		F-600-LX			½" - 32"	Class 600							Raised Face	-								
			F-350-3X			½" - 3"	max 350 bar							-	ISO 6162-1								
	Gasket	Spiral-Wound	J-600-EH			½" - 32"	-							Class 600	Raised Face	ASME B16.20	AISI 316/graphite						
Stud & Nuts	Stud and Nuts	P-600-08	½" - 1 ½"	-	-	-	ASME B1.1	A194 7L, Zn-Ni															
								A320 L7, Zn-Ni															
Paddles	Figure-8 Blank	R8-600-RS	½" - 8"	According to pipe	600	Raised Face ASME B16.5	ASME B16.48	Stainless Steel ASTM A240 316															
	Paddle Blank	RA-600-RS	10" - 32"																				
	Paddle Spacer	RE-600-RS																					

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp

Branch (see notes)	

0.5	TEE
0.75	RTTE



1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.

[illegible]

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2						
									PIPING SPECIFICATION FOR TOPSIDE						Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : 1.6 mm
Services (see notes): HWP - Process Heating Water; S - Steam; SC - Steam Condensate;										Material: Carbon Steel		Class: 600		Standard: E4					
Pressure Rating (see notes)																			
Temperature (°C)		0	38	50	100	150	200	250	300	350									
Max Pressure (barg)		102.1	102.1	100.2	93.2	90.2	87.6	83.9	79.6	75.1									
Pipes and Fittings (see notes)																			
Items		Code	Size	Wall	Class	Ends	Standard			Material									
Pipes	Pipe	T-102	½" - 1 ½"	XS	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML											
			2" - 8"	BE		API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)													
			10" - 14"																
			16"																
			18"																
			20"																
24"	1.188"	API 5L Gr B PSL 1 WLD (HFW or SAW)																	
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A105											
	45 Elbow	C02-02																	
	Tee	C03-02																	
	Cross	C05-02																	
	Coupling	C06-02																	
	Cap	C11-02																	
	Socketlet	C55-02	¾" - 1 ½"	According to pipe	-	BE	MSS SP-97												
	Red Tee	C04-02					ASME B16.11												
	Red Coupling	C08-02																	
	Weldolet	C12-02	1" - 10"				MSS SP-97												
	90 LR Elbow	C15-03	2" - 24"				ASME B16.9	ASTM A234 Gr WPB											
	45 LR Elbow	C16-03																	
	90 SR Elbow	C17-03																	
	Tee	C20-03																	
	Cap	C22-03																	
	Cross	C24-03																	
	Conc. Red	C18-03	3" - 24"																
	Ecc. Red	C19-03																	
	Red Tee	C21-03																	
Nipple	Straight Nipple	N-S120	½" - 1 ½"			According to pipe	-	PBE	ASTM A733	API 5L Gr B PSL 1 seamless									
	Swage Conc Nipple	N-C103	¾" - 1 ½"					BLE x PSE	MSS SP-95	ASTM A234 Gr WPB									
		N-C403	2" - 4"																
	Swage Ecc Nipple	N-E103	¾" - 1 ½"																
		N-E403	2" - 4"																
Flanges	Socket Weld (SW)	F-600-Q2	½" - 1 ½"	According to pipe	Class 600	Ring Type Joint	ASME B16.5			ASTM A105									
	Welding Neck (WN)	F-600-R2	2" - 24"																
	Blind	F-600-S2	1" - 24"																
Gasket	Ring-Joint	J-600-AN	½" - 24"	-	Class 600	Ring Type Joint	ASME B16.20			Carbon Steel									
Stud & Nuts	Stud and Nuts	P-600-01	½" - 1 ⅞"	-	-	-	ASME B1.1			A194 Gr 2H									
			A193 B7																
Paddles	Figure-8 Blank	R8-600-JC	½" - 8"	According to pipe	600	Ring Type Joint ASME B16.5	ASME B16.48			Carbon Steel ASTM A516 GR60									
	Paddle Blank	RA-600-JC	10" - 24"																
	Paddle Spacer	RE-600-JC																	

Run Size	Branch Size																							
	0.5	0.75	1	1.5	2	3	4	6	8	10	12	14	16	18	20	24								
0.5	TEE																							
0.75	RTEE	TEE																						
1	RTEE	RTEE	TEE																					
1.5	RTEE	RTEE	RTEE	TEE																				
2	SOC	SOC	SOC	SOC	TEE																			
3	SOC	SOC	SOC	SOC	RTEE	TEE																		
4	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE																	
6	SOC	SOC	SOC	SOC	WOL	RTEE	RTEE	TEE																
8	SOC	SOC	SOC	SOC	WOL	WOL	RTEE	RTEE	TEE															
10	SOC	SOC	SOC	SOC	WOL	WOL	WOL	RTEE	RTEE	TEE														
12	SOC	SOC	SOC	SOC	WOL	WOL	WOL	RTEE	RTEE	RTEE	TEE													
14	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	TEE												
16	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	TEE											
18	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	TEE										
20	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE									
24	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE								

WOL - Weldolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1 \frac{1}{2}$ " may be used, if strictly necessary.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
9	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and API 5L requirements. Applicable to both base material and WPS qualification.
11	For API 5L pipe the maximum carbon equivalent is CE iir = 0,43% or CE pcm = 0,25%.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: Inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
154	Studs, bolts and nuts shall be Zn-Ni coated if the design temperature of the line is up to 260 C. Design temperature above 260 C, studs, bolts and nuts shall be bare type (w/ithout zn ni coating).

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2									
			PIPING SPECIFICATION FOR TOPSIDE								Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : 1.6 mm							
Services (see notes): FG - Fuel Gas; G - Glycol; GL - Refrigerated Liquefied Petroleum Gases in Low Temperature; P - Process (non-corrosive hydrocarbon);										Material: Low Temp CS		Class: 600		Standard: E6								
Pressure Rating (see notes)																						
Temperature (°C)		-46	0	38	50	100	150	180														
Max Pressure (barg)		102.1	102.1	102.1	100.2	93.2	90.2	88.6														
Pipes and Fittings (see notes)																						
Items		Code	Size	Wall	Class	Ends	Standard		Material													
Pipes	Pipe	T-105	½" - 1 ½"	S-160	-	PE	ASME B36.10	ASTM A333 Gr 6 SML														
			2"	XS		BE																
			3"	STD																		
			4"	0.281"																		
			6"	0.375"																		
			8"	0.438"																		
			10"	0.562"																		
			12"	0.625"																		
		T-106	16" - 24"	S-60				ASTM A671 Gr CC60 Class 22 WLD														
			26"	1.062"																		
Fittings	90 Elbow	C01-04	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A350 Gr LF2 Cl 1														
	45 Elbow	C02-04																				
	Tee	C03-04																				
	Cross	C05-04																				
	Coupling	C06-04																				
	Cap	C11-04																				
	Sockolet	C55-04																				
	Red Tee	C04-04	¾" - 1 ½"				MSS SP-97															
	Red Coupling	C08-04																				
	Weldolet	C12-04	2" - 12"	According to pipe	-	BE	ASME B16.9	ASTM A420 Gr WPL6														
	90 LR Elbow	C15-05	2" - 26"																			
	45 LR Elbow	C16-05																				
	90 SR Elbow	C17-05																				
	Tee	C20-05																				
	Cap	C22-05																				
	Cross	C24-05																				
	Conc. Red	C18-05	3" - 26"																			
	Ecc. Red	C19-05																				
	Red Tee	C21-05																				
Nipple	Straight Nipple	N-S137	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A333 Gr 6														
	Swage Conc Nipple	N-C105	¾" - 1 ½"			BLE x PSE PBE BLE x PSE	MSS SP-95	ASTM A420 Gr WPL6														
		N-C405	2" - 4"																			
	Swage Ecc Nipple	N-E105	¾" - 1 ½"																			
		N-E405	2" - 4"																			
Flanges	Socket Weld (SW)	F-600-J3	½" - 1 ½"	According to pipe	Class 600	Raised Face	ASME B16.5	ASTM A350 Gr LF2 Class 1														
	Welding Neck (WN)	F-600-K3	2" - 24"				ASME B16.47 A															
			26"				ASME B16.5															
	Blind	F-600-L3	1" - 24"				ASME B16.47 A															
			26"				ASME B16.47 A															
Gasket	Spiral-Wound	J-600-EH	½" - 26"	-	Class 600	Raised Face	ASME B16.20	AISI 316/graphite														
Stud & Nuts	Stud and Nuts	P-600-08	½" - 1 ⅞"	-	-	-	ASME B1.1	A194 7L, Zn-Ni														
								A320 L7, Zn-Ni														
Paddles	Figure-8 Blank	R8-600-RL	½" - 8"	According to pipe	600	Raised Face ASME B16.5	ASME B16.48	Low Temp. Carbon Steel ASTM A516 70 + S5														
	Paddle Blank	RA-600-RL	10" - 26"																			
	Paddle Spacer	RE-600-RL																				

[illegible]

TEE - Tee

HC - Half Coupling

1	On the spec valve list, it may have valve codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
25	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and standard material specification.
120	Welder valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrosbras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACF requirement for carbon steel which shall follow I-ET-3010 XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2	
								PIPING SPECIFICATION FOR TOPSIDE					Issued by: SRGE/ESUP
Services (see notes): DO - Carbon Dioxide (DRY);								Material: Galv. CS		Class: 600		Standard: E8	
Pressure Rating (see notes)													
Temperature (°C)		-18		0		38		54					
Max Pressure (barg)		102.1		102.1		102.1		99.6					
Pipes and Fittings (see notes)													
Items		Code	Size	Wall	Class	Ends	Standard	Material					
Pipes	Pipe	T-102	½" - 1 ½"	XS	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML					
			2" - 4"	STD		BE		API 5L Gr B PSL 1 (SML or WLD HFW or WLD SAW)					
			6"	0.312"									
			8"	S-60									
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A105					
	45 Elbow	C02-02											
	Tee	C03-02											
	Cross	C05-02											
	Coupling	C06-02											
	Union	C10-02											
	Cap	C11-02											
	Sockolet	C55-02	¾" - 1 ½"	According to pipe	-	BE	ASME B16.9	ASTM A234 Gr WPB					
	Red Tee	C04-02											
	Red Coupling	C08-02	2" - 8"										
	Weldolet	C12-02											
	90 LR Elbow	C15-03											
	45 LR Elbow	C16-03											
	90 SR Elbow	C17-03											
	Tee	C20-03											
	Cap	C22-03											
	Cross	C24-03											
	Conc. Red	C18-03											
Ecc. Red	C19-03												
Red Tee	C21-03												
Nipple	Straight Nipple	N-S120	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	API 5L Gr B PSL 1 seamless					
	Swage Conc Nipple	N-C103	¾" - 1 ½"				MSS SP-95	ASTM A234 Gr WPB					
		N-C403	2" - 4"										
	Swage Ecc Nipple	N-E103	¾" - 1 ½"										
		N-E403	2" - 4"										
Flanges	Welding Neck (WN)	F-600-K1	1" - 8"	According to pipe	Class 600	Raised Face	ASME B16.5	ASTM A105 Galvanized					
	Blind	F-600-L1											
Gasket	Spiral-Wound	J-600-EH	½" - 8"	-	Class 600	Raised Face	ASME B16.20	AISI 316/graphite					
Stud & Nuts	Stud and Nuts	P-600-07	½" - 1 ⅞"	-	-	-	ASME B1.1	A194 Gr 2H, Zn-Ni					
								A193 B7, Zn-Ni					
Paddles	Figure-8 Blank	R8-600-RC	½" - 8"	According to pipe	600	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60					

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES				Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B	Sheet: 2 of 2																																																																				
			PIPING SPECIFICATION FOR TOPSIDE					Material: Galv. CS	Class: 600	Standard: E8																																																																				
Valves (see notes)																																																																														
Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp																																																															
Check	½" - 1 ½"	VRE-800-1-C102	-29C to 400C					Ball	2" - 8"	VES-600-2-C15G	-29C to 150C	Check	2" - 8"	VRE-600-2-C112	-29C to 400C																																																															
Ball	½" - 1 ½"	VES-600-1-C1F0	-29C to 150C					2" - 8"	VES-600-2-C13F	0C to 150C																																																																				
Branch (see notes)																																																																														
RUN SIZE <table><tr><td>0.5</td><td>TEE</td></tr><tr><td>0.75</td><td>RTEE</td><td>TEE</td></tr><tr><td>1</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>1.5</td><td>RTEE</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>2</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>TEE</td></tr><tr><td>3</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>RTEE</td><td>TEE</td></tr><tr><td>4</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>6</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>WOL</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>8</td><td>SOC</td><td>SOC</td><td>SOC</td><td>SOC</td><td>WOL</td><td>WOL</td><td>RTEE</td><td>RTEE</td><td>TEE</td></tr><tr><td>0.5</td><td>0.75</td><td>1</td><td>1.5</td><td>2</td><td>3</td><td>4</td><td>6</td><td>8</td></tr></table> BRANCH SIZE WOL - Weldolet TEE - Tee RTEE - Red Tee HC - Half Coupling SOC - Sockolet																0.5	TEE	0.75	RTEE	TEE	1	RTEE	RTEE	TEE	1.5	RTEE	RTEE	RTEE	TEE	2	SOC	SOC	SOC	SOC	TEE	3	SOC	SOC	SOC	SOC	RTEE	TEE	4	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE	6	SOC	SOC	SOC	SOC	WOL	RTEE	RTEE	TEE	8	SOC	SOC	SOC	SOC	WOL	WOL	RTEE	RTEE	TEE	0.5	0.75	1	1.5	2	3	4	6	8
0.5	TEE																																																																													
0.75	RTEE	TEE																																																																												
1	RTEE	RTEE	TEE																																																																											
1.5	RTEE	RTEE	RTEE	TEE																																																																										
2	SOC	SOC	SOC	SOC	TEE																																																																									
3	SOC	SOC	SOC	SOC	RTEE	TEE																																																																								
4	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE																																																																							
6	SOC	SOC	SOC	SOC	WOL	RTEE	RTEE	TEE																																																																						
8	SOC	SOC	SOC	SOC	WOL	WOL	RTEE	RTEE	TEE																																																																					
0.5	0.75	1	1.5	2	3	4	6	8																																																																						
Notes																																																																														
1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.																																																																													
2	See Annex A for valves requirements and general selection criteria.																																																																													
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.																																																																													
4	See Annex C for instruments, drains and vents typical piping arrangement.																																																																													
5	Flanges ≤ 1 1/2" may be used, if strictly necessary .																																																																													
6	See Annex E for Isolation gasket specifications.																																																																													
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.																																																																													
9	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and API 5L requirements. Applicable to both base material and WPS qualification.																																																																													
52	Piping, fittings and accessories must be galvanized after spool fabrication according to ASTM A123 with minimum coating thickness of100µm.																																																																													
63	From -18°C to 0°C, API 5L gr B shall be furnished normalized.																																																																													
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.																																																																													

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2											
			PIPING SPECIFICATION FOR TOPSIDE							Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : 3.2 mm									
Services (see notes): P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);								Material: Carbon Steel		Class: 600		Standard: E9											
Pressure Rating (see notes)																							
Temperature (°C)		-29	0	38	50	100	150																
Max Pressure (barg)		102.1	102.1	102.1	100.2	93.2	90.2																
Pipes and Fittings (see notes)																							
Items		Code	Size	Wall	Class	Ends	Standard		Material														
Pipes	Pipe	T-102	½" - 1 ½"	S-160	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML															
		T-107	2"	XS		BE				API 5L Gr X65 PSL 2 (SML or WLD SAW)													
			3" - 4"	XS																			
			6"	0.375"																			
			8" - 10"	XS																			
			12"	S-80																			
			14"	0.625"																			
			16"	0.688"																			
			18" - 20"	S-60																			
24"	0.938"																						
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A105															
	45 Elbow	C02-02																					
	Tee	C03-02																					
	Cross	C05-02																					
	Coupling	C06-02																					
	Cap	C11-02																					
	Sockolet	C55-02																					
	Red Tee	C04-02	¾" - 1 ½"	According to pipe	-	BE	ASME B16.11																
	Red Coupling	C08-02																					
	Weldolet	C12-22	2" - 10"				MSS SP-97	ASTM A694 Gr F65															
	90 LR Elbow	C15-22	2" - 24"						MSS SP-75	ASTM A860 WPHY65													
	45 LR Elbow	C16-22																					
	90 SR Elbow	C17-22																					
	Tee	C20-22																					
	Cap	C22-22																					
	Cross	C24-22																					
	Conc. Red	C18-22																					
	Ecc. Red	C19-22	3" - 24"																				
	Red Tee	C21-22																					
Nipple	Straight Nipple	N-S120	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	API 5L Gr B PSL 1 seamless															
	Swage Conc Nipple	N-C103	¾" - 1 ½"			BLE x PSE	MSS SP-95	ASTM A234 Gr WPB															
		N-C422	2" - 4"					ASTM A860 WPHY65															
	Swage Ecc Nipple	N-E103	¾" - 1 ½"					ASTM A234 Gr WPB															
		N-E422	2" - 4"					ASTM A860 WPHY65															
Flanges	Socket Weld (SW)	F-600-J2	½" - 1 ½"	According to pipe	Class 600	Raised Face	ASME B16.5	ASTM A105															
	Welding Neck (WN)	F-600-KC	2" - 24"				ASTM A694 Gr F65																
	Blind	F-600-L2	½" - 1 ½"				ASTM A105																
			1" - 1 ½"																				
		F-600-LC	2" - 24"				ASTM A694 Gr F65																
Gasket	Spiral-Wound	J-600-EH	½" - 24"	-	Class 600	Raised Face	ASME B16.20	AISI 316/graphite															
Stud & Nuts	Stud and Nuts	P-600-08	½" - 1 ⅝"	-	-	-	ASME B1.1	A194 7L, Zn-Ni															
								A320 L7, Zn-Ni															
Paddles	Figure-8 Blank	R8-600-RC	½" - 8"	According to pipe	600	Raised Face ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60															
	Paddle Blank	RA-600-RC	10" - 24"																				
	Paddle Spacer	RE-600-RC																					

[illegible]

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
9	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and API 5L requirements. Applicable to both base material and WPS qualification.
11	For API 5L pipe the maximum carbon equivalent is CE iiw = 0,43% or CE pcm = 0,25%.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
138	Welded pipe to API 5L: 100 % RT of weld seam.

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc:		Revision:		Sheet								
								I-ET-3010.2Q-1200-200-P4X-001		Rev B		1 of 2								
PIPING SPECIFICATION FOR TOPSIDE								Issued by :	Code:	Corr. Allow. :										
								SRGE/ESUP	ASME B31.3	1.6 mm										
Services (see notes): AM - Amine; BG - Inert Gas; CI - Chemical Injection (non-corrosive); FG - Fuel Gas; G - Glycol; IW - De-Aerated Sea Water Injection; P - Process (non-corrosive hydrocarbon); W - Industrial water;								Material:	Class:	Standard:										
								Carbon Steel	600	E10										
Pressure Rating (see notes)																				
Temperature (°C)		-29	0	38	50	100	150	200												
Max Pressure (barg)		102.1	102.1	102.1	100.2	93.2	90.2	87.6												
Pipes and Fittings (see notes)																				
Items		Code	Size	Wall	Class	Ends	Standard		Material											
Pipes	Pipe	T-102	½" - 1 ½"	S-160	-	PE	ASME B36.10		API 5L Gr B PSL 1 SML											
		T-107	2" - 4"	STD		BE			API 5L Gr X65 PSL 2 (SML or WLD SAW)											
			6"	0.312"																
			8"	0.375"																
			10"	0.438"																
			12"	XS																
			14"	0.562"																
			16"	0.625"																
			18"	0.688"																
		20"	0.750"																	
24"	0.875"																			
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	6000	SW	ASME B16.11		ASTM A105											
	45 Elbow	C02-02																		
	Tee	C03-02																		
	Cross	C05-02																		
	Coupling	C06-02																		
	Cap	C11-02																		
	Sockolet	C55-02																		
	Red Tee	C04-02	¾" - 1 ½"		MSS SP-97															
	Red Coupling	C08-02						ASME B16.11												
	Weldolet	C12-22	2" - 10"	According to pipe	-	BE	MSS SP-97				ASTM A694 Gr F65									
	90 LR Elbow	C15-22	2" - 24"				MSS SP-75		ASTM A860 WPHY65											
	45 LR Elbow	C16-22																		
	90 SR Elbow	C17-22																		
	Tee	C20-22																		
	Cap	C22-22																		
	Cross	C24-22																		
	Conc. Red	C18-22	3" - 24"																	
	Ecc. Red	C19-22																		
	Red Tee	C21-22																		
	Nipple	Straight Nipple	N-S120	½" - 1 ½"	According to pipe	-	PBE	ASTM A733		API 5L Gr B PSL 1 seamless										
Swage Conc Nipple		N-C103	¾" - 1 ½"	BLE x PSE			MSS SP-95		ASTM A234 Gr WPB											
		N-C422	2" - 4"						ASTM A860 WPHY65											
Swage Ecc Nipple		N-E103	¾" - 1 ½"						ASTM A234 Gr WPB											
		N-E422	2" - 4"						ASTM A860 WPHY65											
Flanges	Socket Weld (SW)	F-600-J2	½" - 1 ½"	According to pipe	Class 600	Raised Face	ASME B16.5		ASTM A105											
	Welding Neck (WN)	F-600-KC	2" - 24"				-		ASTM A694 Gr F65											
	Blind	F-600-L2	½" - 1 ½"						ASTM A105											
			1" - 1 ½"																	
		F-600-LC	2" - 24"				ASME B16.5													
Gasket	Spiral-Wound	J-600-EH	½" - 24"	-	Class 600	Raised Face	ASME B16.20		AISI 316/graphite											
Stud & Nuts	Stud and Nuts	P-600-08	½" - 1 ⅞"	-	-	-	ASME B1.1		A194 7L, Zn-Ni											
									A320 L7, Zn-Ni											
Paddles	Figure-8 Blank	R8-600-RC	½" - 8"	According to pipe	600	Raised Face ASME B16.5	ASME B16.48		Carbon Steel ASTM A516 GR60											
	Paddle Blank	RA-600-RC	10" - 24"																	
	Paddle Spacer	RE-600-RC																		

[illegible]

1	On the spec valve list, it may have valve codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary .
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
9	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and API 5L requirements. Applicable to both base material and WPS qualification.
11	For API 5L pipe the maximum carbon equivalent is $CE_{iiv} = 0,43\%$ or $CE_{pcm} = 0,25\%$.
40	The IW service is only applicable for onshore units.
56	This spec for FG service is applicable for piping upstream the filters.
64	This spec for Amine service is applicable for piping downstream the regeneration unit and upstream the contactor unit.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001: supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001: and coating for bolts and nuts shall follow spec note number 3.
138	Welded pipe to API 5L: 100 % RT of weld seam.

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2										
								PIPING SPECIFICATION FOR TOPSIDE					Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -					
Services (see notes): AM - Amine; PC - Process (Corrosive Hydrocarbon);										Material: Duplex		Class: 600		Standard: E16								
Pressure Rating (see notes)																						
Temperature (°C)		-46	0	38	50	100	130															
Max Pressure (barg)		103.4	103.4	103.4	103.4	101.3	95.6															
Pipes and Fittings (see notes)																						
Items		Code	Size	Wall	Class	Ends	Standard		Material													
Pipes	Pipe	T-301	½" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S31803) SML														
			2" - 8"			BE		ASTM A928 (UNS S31803 Cl 1 or 3) WLD														
		T-302	10" - 12"	S-80S																		
			14" - 16"											0.562"								
Fittings	90 Elbow	C01-27	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F51 (UNS S31803)														
	45 Elbow	C02-27																				
	Tee	C03-27																				
	Cross	C05-27																				
	Coupling	C06-27																				
	Cap	C11-27																				
	Socketlet	C55-27																				
	Red Tee	C04-27	¾" - 1 ½"	According to pipe	-	BE	ASME B16.11	ASTM A815 (UNS S31803)														
	Red Coupling	C08-27																				
	Weldolet	C12-27	2" - 8"											MSS SP-97								
	90 LR Elbow	C15-29	2" - 18"											-	BE	ASME B16.9						
	45 LR Elbow	C16-29																				
	90 SR Elbow	C17-29																				
	Tee	C20-29																				
	Cap	C22-29																				
	Cross	C24-29																				
	Conc. Red	C18-29		3" - 18"	-	BE	ASME B16.9															
	Ecc. Red	C19-29																				
	Red Tee	C21-29																				
Nipple	Straight Nipple	N-S128	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A790 (UNS S31803)														
	Swage Conc Nipple	N-C129	¾" - 1 ½"			BLE x PSE	MSS SP-95	ASTM A815 (UNS S31803)														
		N-C429	2" - 4"																			
	Swage Ecc Nipple	N-E129	¾" - 1 ½"			PBE																
		N-E429	2" - 4"			BLE x PSE																
Flanges	Socket Weld (SW)	F-600-JG	½" - 1 ½"	According to pipe	Class 600	Raised Face	ASME B16.5	ASTM A182 Gr F51														
	Welding Neck (WN)	F-600-KG	2" - 18"				-															
	Blind	F-600-LG	½" - 18"																			
Gasket	Spiral-Wound	J-600-EL	½" - 18"	-	Class 600	Raised Face	ASME B16.20	Duplex/graphite														
Stud & Nuts	Stud and Nuts	P-600-08	½" - 1 ½"	-	-	-	ASME B1.1	A194 7L, Zn-Ni														
							A320 L7, Zn-Ni															
Paddles	Figure-8 Blank	R8-600-RD	½" - 8"	According to pipe	600	Raised Face ASME B16.5	ASME B16.48	Duplex Stainless Steel ASTM A240 UNS31803														
	Paddle Blank	RA-600-RD	10" - 18"																			
	Paddle Spacer	RE-600-RD																				

WOL - Weldolet
TEE - Tee
RTEE - Red Tee
HC - Half Coupling
SOC - Sockolet

process data log

[illegible]

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc:		Revision:		Sheet			
								I-ET-3010.2Q-1200-200-P4X-001		Rev B		1 of 2			
PIPING SPECIFICATION FOR TOPSIDE								Issued by :		Code:		Corr. Allow. :			
								SRGE/ESUP		ASME B31.3		-			
Services (see notes): PC - Process (Corrosive Hydrocarbon);								Material:		Class:		Standard:			
								CS Inconel Clad.		600		E30			
Pressure Rating (see notes)															
Temperature (°C)		-20	0	38	100	150	200								
Max Pressure (barg)		102.1	102.1	102.1	93.2	90.2	87.6								
Pipes and Fittings (see notes)															
Items		Code	Size	Wall	Class	Ends	Standard		Material						
Pipes	Pipe	T-203	½" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19		ASTM B444 Gr 1 (UNS N06625) SML						
		T-107	2" - 4"			ASME B36.10	API 5L Gr X65 PSL 2 (SML or WLD SAW)								
			6" - 8"	API 5L Gr X65 PSL 2 WLD SAW											
			10"												
			12" - 14"												
			16"												
			18"												
		20"													
24"															
Fittings	90 Elbow	C01-33	½" - 1 ½"	-	3000	SW	ASME B16.11		ASTM B366 (UNS N06625)						
	45 Elbow	C02-33					MSS SP-97								
	Tee	C03-33					ASME B16.11								
	Cross	C05-33													
	Coupling	C06-33													
	Cap	C11-33													
	Socketlet	C55-33	¾" - 1 ½"												
	Red Tee	C04-33													
	Red Coupling	C08-33													
	Weldolet	C12-22	2" - 3"	According to pipe	-	BE	MSS SP-97		ASTM A694 Gr F65						
	90 LR Elbow	C15-33					ASME B16.9		ASTM B366 (UNS N06625)						
	45 LR Elbow	C16-33													
	90 SR Elbow	C17-33													
	Tee	C20-33													
	Cap	C22-33													
	Cross	C24-33	3"												
	Ecc. Red	C19-33													
	Red Tee	C21-33													
	Conc. Red	C18-33	3" - 4"												
	90 LR Elbow	C15-22	6" - 24"												
	45 LR Elbow	C16-22													
	90 SR Elbow	C17-22													
	Tee	C20-22													
	Cap	C22-22													
	Cross	C24-22													
	Ecc. Red	C19-22	8" - 24"												
	Conc. Red	C18-22													
	Red Tee	C21-22					10" - 24"								
Nipple	Straight Nipple	N-S139	½" - 1 ½"				According to pipe	-	PBE	ASTM A733		ASTM B444 Gr 1 (UNS N06625)			
	Swage Conc Nipple	N-C133	¾" - 1 ½"						BLE x PSE	MSS SP-95		ASTM B366 (UNS N06625)			
		N-C433	2" - 3"												
	Swage Ecc Nipple	N-E133	¾" - 1 ½"	PBE											
		N-E433	2" - 3"	BLE x PSE											
Flanges	Socket Weld (SW)	F-600-JL	½" - 1 ½"	According to pipe	Class 600	Raised Face	ASME B16.5		ASTM B564 (UNS N06625)						
	Welding Neck (WN)	F-600-KL	2" - 3"						ASTM A694 Gr F65 Cladded						
		F-600-KD	6" - 24"						ASTM B564 (UNS N06625)						
	Blind	F-600-LL	½" - 3"								ASTM A694 Gr F65 Cladded				
		F-600-LD	4" - 24"												
Gasket	Spiral-Wound	J-600-EM	½" - 24"	-	Class 600	Raised Face	ASME B16.20		Inconel/graphite						
Stud & Nuts	Stud and Nuts	P-600-08	½" - 1 ⅞"	-	-	-	ASME B1.1		A194 7L, Zn-Ni						
									A320 L7, Zn-Ni						
Paddles	Figure-8 Blank	R8-600-RI	½" - 8"	According to pipe	600	Raised Face ASME B16.5	ASME B16.48		Carbon Steel ASTM A516 GR60 with Inconel 625 layer						
	Paddle Blank	RA-600-RI													
	Paddle Spacer	RE-600-RI													



Doc:
I-ET-3010.2Q-1200-200-
P4X-001

Revision:	Rev B

2 of 2

Material:	CS Inconel Clad.

Class:	600

Standard:
E30

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	
Check	½" - 1 ½"	VRE-800-2-N102	-100C to 400C	Ball	2" - 4"	VES-600-1-C570	0C to 210C	Ball	2" - 24"	VES-600-2-C580	0C to 400C	Double Ball	Ball	6" - 24"	VES-600-4-C584	0C to 400C
Needle	VAG-3000-1-N102	-100C to 400C	VES-600-1-C580			0C to 400C	VES-600-2-C582			-29C to 200C					VDE-600-2-N101	-30C to 150C
	VAG-3000-1-N1F2	VES-600-2-C514	-29C to 150C			VES-600-2-C58G	VDE-600-2-N107								-100C to 400C	
Ball	½" - 1 ½"	VES-801-1-N104	-46C to 150C		VES-600-2-C51F	VES-600-2-C59F	VDE-600-2-N108				-100C to 400C					
		VES-801-1-N105	-100C to 200C		VES-600-2-C524	VES-600-3-C553	VDE-600-2-N1F1				-30C to 150C					
		VES-801-2-N104	-46C to 150C		VES-600-2-C528	VES-600-3-C55G	VDE-600-2-N1F5				-100C to 200C					
		VES-801-2-N105	-100C to 200C		VES-600-2-C534	VES-600-3-C562	VDE-600-2-N1F6				-100C to 200C					
		VES-801-2-N1F3	-46C to 150C		VES-600-2-C538	VES-600-3-C563	VDE-600-2-N1F7				-100C to 400C					
		VES-801-2-N1F4	VES-801-2-N1F5		-100C to 200C	VES-600-2-C53F	VES-600-3-C572				VDE-600-2-N1F8		-100C to 400C			
		VES-801-2-N1F6	-100C to 340C		VES-600-2-C53G	VES-600-3-C573	VDE-600-2-C515				-29C to 150C					
		VES-801-3-N105	-100C to 200C		VES-600-2-C560	VES-600-3-C57G	VDE-600-2-C51F				-29C to 200C					
		VES-801-3-N1F5	VES-600-2-C562		VES-600-2-C570	2" - 20"	VES-600-3-C582				VDE-600-2-C57F		-29C to 200C			
		VES-600-1-C524	0C to 150C		VES-600-2-C572	2" - 24"	VES-600-3-C583				0C to 400C		Globe	2" - 12"	VGL-600-2-C501	-29C to 400C
		VES-600-1-C534	VES-600-2-C57F		VES-600-4-C574	VES-600-3-C58G	VGL-600-2-C5F1		-29C to 400C							
		2" - 4"	VES-600-1-C560		0C to 210C	VES-600-2-C57G	6" - 24"		VES-600-4-C564	0C to 210C	Check	2" - 24"	VRE-600-2-C515	-29C to 400C		
										VRE-600-4-C535			-29C to 210C			

[illegible]

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
4	See Annex C for instruments, drains and vents typical piping arrangement.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
9	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and API 5L requirements. Applicable to both base material and WPS qualification.
25	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and standard material specification.
27	See I-ET-3010.XX-1200-940-P4X-001 to check the piping spec range application for H2S and CO2 service.
42	Piping, fittings and accessories shall have internal Inconel® 625 cladding according to I-ET-3010.00-1200-955-P4X-001 - Welding.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
138	Welded pipe to API 5L: 100 % RT of weld seam.
159	Weld overlay shall fully extend on flange face up to groove outer diameter or raised face outer diameter. The minimum thickness for inconel layer to be measured after machining. This note is valid for niping and valve flanges.

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES								Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2																																																																																																																																																																																																																																																																																																																																																																																																																																																	
											PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: 1.6 mm																																																																																																																																																																																																																																																																																																																																																																																																																																									
Services (see notes): S - Steam;										Material: P22 Alloy Steel									Class: 600		Standard: E34																																																																																																																																																																																																																																																																																																																																																																																																																																											
Pressure Rating (see notes)																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Temperature (°C)		0	38	50	100	150	200	250	300	325	350	375	400	425	450																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Max Pressure (barg)		103.4	103.4	103.4	103.0	100.3	97.2	92.7	85.7	82.6	80.4	77.6	73.3	70	67.7																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Pipes and Fittings (see notes)																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Items		Code	Size	Wall	Class	Ends	Standard		Material																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Pipes	Pipe	T-218	1" - 1 ½"	S-160	-	PE	ASME B36.10		ASTM A335 P22 (UNS K21590) SML																																																																																																																																																																																																																																																																																																																																																																																																																																																							
			2"	0.188"		BE																																																																																																																																																																																																																																																																																																																																																																																																																																																										
			4" - 8"	XS																																																																																																																																																																																																																																																																																																																																																																																																																																																												
			10" - 14"	S-80																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Fittings	90 Elbow	C01-66	½" - 1 ½"	-	6000	SW	ASME B16.11		ASTM A182 Gr F22 Cl 3 (K21590)																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	45 Elbow	C02-66																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Tee	C03-66																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Cross	C05-66																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Coupling	C06-66																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Cap	C11-66																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Socketlet	C55-63	¾" - 1 ½"				MSS SP-97																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	Red Tee	C04-66							ASME B16.11																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	Weldolet	C12-63	2" - 6"	According to pipe	-	BE	ASME B16.9				ASTM A234 Gr WP22 Cl 3 (UNS K21590)																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	90 LR Elbow	C15-65																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	45 LR Elbow	C16-65																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	90 SR Elbow	C17-65																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Tee	C20-65																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Cap	C22-65																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Cross	C24-65																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Conc. Red	C18-65																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Ecc. Red	C19-65	4" - 14"																																																																																																																																																																																																																																																																																																																																																																																																																																																													

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES				Doc: I-ET-3010.2Q-1200-200-P4X-001				Revision: Rev B		Sheet: 2 of 2			
							PIPING SPECIFICATION FOR TOPSIDE								Material: P22 Alloy Steel	
Valves (see notes)																
Type	Size		CODE		Temp	Type	Size	CODE		Temp	Type	Size	CODE		Temp	
Gate	1" - 1 1/2"	VGA-801-1-A701		-29C to 500C	Gate	1" - 1 1/2"	VGA-801-2-A701		-29C to 500C	Gate	2" - 14"	VGA-600-1-A731		-29C to 500C		
Branch (see notes)																
0.5 0.75 1 1.5 2 3 4 6 8 10 12 14 0.5 0.75 1 1.5 2 3 4 6 8 10 12 14 WOL - Weldolet TEE - Tee RTEE - Red Tee HC - Half Coupling SOC - Sockolet																
Notes																
1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.															
2	See Annex A for valves requirements and general selection criteria.															
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.															
4	See Annex C for instruments, drains and vents typical piping arrangement.															
5	Flanges ≤ 1 1/2" may be used, if strictly necessary .															
6	See Annex E for Isolation gasket specifications.															
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.															
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.															
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.															
161	For design temperatures above 370°C, the chemical compositions of all materials shall be restricted in order to comply with the following J Factor (Watanabe): J = (Si+Mn) x (P+Sn) x 10^4 ≤ 150 (Si, Mn, P and Sn in wt%). Cu ≤ 0.20 wt%, and Ni ≤ 0.30 wt%															

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2				
									PIPING SPECIFICATION FOR TOPSIDE						Issued by : SRGE/ESUP		Code: ASME B31.3
Services (see notes): GL - Refrigerated Liquefied Petroleum Gases in Low Temperature; P - Process (non-corrosive hydrocarbon);												Material: Low Temp CS		Class: 900		Standard: F6	
Pressure Rating (see notes)																	
Temperature (°C)		-46	0	38	50	100	200	250	300	320							
Max Pressure (barg)		153.2	153.2	153.2	150.4	139.8	131.4	125.8	119.5	116.7							
Pipes and Fittings (see notes)																	
Items		Code	Size	Wall	Class	Ends	Standard			Material							
Pipes	Pipe	T-105	½" - 1 ½"	S-160	-	PE	ASME B36.10	ASTM A333 Gr 6 SML									
			2" - 3"	XS		BE											
			4"	S-120													
			6"	0.500"													
			8"	0.625"													
			10"	0.812"													
			12"	0.875"													
			14"	S-100													
		T-106	16"	0.938"		ASTM A671 Gr CC60 Class 22 WLD											
			18"	1.062"													
20"	1.188"																
Fittings	90 Elbow	C01-04	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A350 Gr LF2 Cl 1									
	45 Elbow	C02-04															
	Tee	C03-04															
	Cross	C05-04															
	Coupling	C06-04															
	Cap	C11-04															
	Sockolet	C55-04															
	Red Tee	C04-04															
	Red Coupling	C08-04	¾" - 1 ½"	ASME B16.11	ASTM A420 Gr WPL6												
	Weldolet	C12-04	2" - 8"	MSS SP-97													
	90 LR Elbow	C15-05	According to pipe	-				BE	ASME B16.9								
	45 LR Elbow	C16-05															
	90 SR Elbow	C17-05															
	Tee	C20-05															
	Cap	C22-05															
	Cross	C24-05															
	Conc. Red	C18-05															
	Ecc. Red	C19-05								3" - 20"							
	Red Tee	C21-05															
	Nipple	Straight Nipple	N-S137	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A333 Gr 6								
Swage Conc Nipple		N-C105	¾" - 1 ½"	BLE x PSE PBE BLE x PSE			MSS SP-95	ASTM A420 Gr WPL6									
		N-C405	2" - 4"														
Swage Ecc Nipple		N-E105	¾" - 1 ½"														
		N-E405	2" - 4"														
Flanges	Socket Weld (SW)	F-1500-Q3	½" - 1 ½"	According to pipe	Class 1500	Ring Type Joint	ASME B16.5	ASTM A350 Gr LF2 Class 1									
	Welding Neck (WN)	F-1500-R3	2"		Class 900		-										
		F-900-R3	3" - 20"		Class 1500												
	Blind	F-1500-S3	½" - 2"		Class 900		ASME B16.5										
			1" - 2"		Class 1500												
		F-900-S3	3" - 20"		Class 900												
Gasket	Ring-Joint	J-1500-AT	½" - 2"	-	Class 1500	Ring Type Joint	ASME B16.20	Stainless Steel AISI 316									
		J-900-AT	3" - 20"		Class 900												
Stud & Nuts	Stud and Nuts	P-900-02	¾" - 2"	-	-	-	ASME B1.1	A194 7L									
								A320 L7									
Paddles	Figure-8 Blank	R8-900-JL	½" - 6"	According to pipe	900	Ring Type Joint ASME B16.5	ASME B16.48	Low Temp. Carbon Steel ASTM A516 70 + S5									
	Paddle Blank	RA-900-JL	8" - 20"														
	Paddle Spacer	RE-900-JL															

WOL - Weldolet
TEE - Tee
RTEE - Red Tee
HC - Half Coupling
SOC - Sockolet

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
25	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and standard material specification.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: Inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
154	Studs, bolts and nuts shall be Zn-Ni coated if the design temperature of the line is up to 260 C. Design temperature above 260 C, studs, bolts and nuts shall be bare type (without zn ni coating).

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200- P4X-001		Revision: Rev B		Sheet 1 of 2											
								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -											
PIPING SPECIFICATION FOR TOPSIDE											Material: SS 316/316L		Class: 1500		Standard: G3								
Services (see notes): CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); D - Diesel; F - Safety System and Flare; FG - Fuel Gas; G - Glycol; H - Hydraulic Fluid; IA - Instrumentation Air; P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);																							
Pressure Rating (see notes)																							
Temperature (°C)		-100	38	50	100	150	210																
Max Pressure (barg)		248.2	248.2	240.6	211	192.5	176.0																
Pipes and Fittings (see notes)																							
Items		Code	Size	Wall	Class	Ends	Standard	Material															
Pipes	Pipe	T-322	½" - 1 ½"	S-80S	-	PE	ASME B36.19	ASTM A312 TP 316/316L SML															
		T-323	2"			ASME B36.10/B36.19	ASTM A358 Type 316/316L Cl 1 or 3 WLD																
			3" - 4"	0.438"																			
			6"	0.719"																			
			8"	0.875"																			
			10"	1.125"																			
			12"	1.250"																			
			14"	1.406"																			
			16"	1.594"																			
		18"	1.781"																				
20"	1.969"																						
Fittings	90 Elbow	C01-43	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F316/316L															
	45 Elbow	C02-43																					
	Tee	C03-43																					
	Cross	C05-43																					
	Coupling	C06-43																					
	Cap	C11-43																					
	Sockolet	C55-43																					
	Red Tee	C04-43	¾" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F316/316L															
	Red Coupling	C08-43																					
	Weldolet	C12-43																					
	90 LR Elbow	C15-44	2" - 20"	According to pipe	-	BE	ASME B16.9	ASTM A403 Gr WP316/316L															
	45 LR Elbow	C16-44																					
	90 SR Elbow	C17-44																					
	Tee	C20-44																					
	Cap	C22-44																					
	Cross	C24-44																					
	Conc. Red	C18-44																					
	Ecc. Red	C19-44	3" - 20"	-	3000	SW	ASME B16.11	ASTM A182 Gr F316/316L															
	Red Tee	C21-44																					
	Nipple	Straight Nipple	N-S145	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A312 TP316/316L														
Swage Conc Nipple		N-C144	¾" - 1 ½"	BLE x PSE			MSS SP-95	ASTM A403 Gr WP316/316L															
		N-C444	2" - 4"																				
Swage Ecc Nipple		N-E144	¾" - 1 ½"																				
		N-E444	2" - 4"																				
Flanges	Socket Weld (SW)	F-1500-QX	½" - 1 ½"	According to pipe	Class 1500	Ring Type Joint	ASME B16.5	ASTM A182 Gr F316/316L															
	Welding Neck (WN)	F-1500-RX	2" - 20"			-	ISO 6162-1																
	Blind	F-350-4X	½" - 3"		max 350 bar	-	-																
		F-1500-SX	½" - 20"		Class 1500	Ring Type Joint	-																
	Hyd One-Piece Flange	F-350-3X	½" - 3"		max 350 bar	-	ISO 6162-1																
Gasket	Ring-Joint	J-1500-AT	½" - 20"	-	Class 1500	Ring Type Joint	ASME B16.20	Stainless Steel AISI 316															
Stud & Nuts	Stud and Nuts	P-1500-08	¾" - 2 ½"	-	-	-	ASME B1.1	A194 7L, Zn-Ni															
		P-1500-09	2 ¾" - 3"					A320 L7, Zn-Ni															
			A194 7L, Zn-Ni																				
Paddles	Figure-8 Blank	R8-1500-JS	½" - 6"	According to pipe	1500	Ring Type Joint ASME B16.5	ASME B16.48	Stainless Steel ASTM A240 316															
	Paddle Blank	RA-1500-JS	8" - 20"																				
	Paddle Spacer	RE-1500-JS																					

	WOL - Weldolet
	TEE - Tee
	RTEE - Red Tee
	HC - Half Coupling
	SOC - Sockolet

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2	
									PIPING SPECIFICATION FOR TOPSIDE					
Services (see notes): BG - Inert Gas; CI - Chemical Injection (non-corrosive); D - Diesel; G - Glycol; IW - De-Aerated Sea Water Injection; P - Process (non-corrosive hydrocarbon); W - Industrial water;						Material: Carbon Steel		Class: 1500		Standard: G10				
Pressure Rating (see notes)														
Temperature (°C)			-29	0	38	50	100	150	200					
Max Pressure (barg)			255.3	255.3	255.3	250.6	233.0	225.4	219					
Pipes and Fittings (see notes)														
Items		Code	Size	Wall	Class	Ends	Standard		Material					
Pipes	Pipe	T-102	½" - 1 ½"	S-160	-	PE	ASME B36.10	API 5L Gr B PSL 1 SML						
		T-107	2" - 3"	S-120		BE			API 5L Gr X65 PSL 2 (SML or WLD SAW)					
			4"	0.625"										
			6"	0.750"										
			8"	0.938"										
			10"	1.062"										
			12"	1.125"										
			14"	S-140						API 5L Gr X65 PSL 2 WLD SAW				
Fittings	90 Elbow	C01-02	½" - 1 ½"	-	6000	SW	ASME B16.11	ASTM A105						
	45 Elbow	C02-02												
	Tee	C03-02												
	Cross	C05-02												
	Coupling	C06-02												
	Cap	C11-02												
	Sockolet	C55-02												
	Red Tee	C04-02	¾" - 1 ½"				MSS SP-97							
	Red Coupling	C08-02							ASME B16.11					
	Weldolet	C12-22	1" - 10"	According to pipe	-	BE	MSS SP-97		ASTM A694 Gr F65					
	90 LR Elbow	C15-22	2" - 24"							MSS SP-75	ASTM A860 WPHY65			
	45 LR Elbow	C16-22												
	90 SR Elbow	C17-22												
	Tee	C20-22												
	Cap	C22-22												
	Cross	C24-22												
	Conc. Red	C18-22										3" - 24"		
	Ecc. Red	C19-22												
	Red Tee	C21-22												
Nipple	Straight Nipple	N-S120	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	API 5L Gr B PSL 1 seamless						
	Swage Conc Nipple	N-C103	¾" - 1 ½"			BLE x PSE PBE BLE x PSE	MSS SP-95	ASTM A234 Gr WPB						
		N-C422	2" - 4"					ASTM A860 WPHY65						
	Swage Ecc Nipple	N-E103	¾" - 1 ½"					ASTM A234 Gr WPB						
		N-E422	2" - 4"					ASTM A860 WPHY65						
	Flanges	Socket Weld (SW)	F-1500-Q2			½" - 1 ½"	According to pipe	Class 1500	Ring Type Joint	ASME B16.5	ASTM A105			
Welding Neck (WN)		F-1500-RC	2" - 24"	ASTM A694 Gr F65										
Blind		F-1500-S2	1" - 1 ½"	ASTM A105										
		F-1500-SC	4" - 24"	ASTM A694 Gr F65										
Gasket	Ring-Joint	J-1500-AN	½" - 24"	-	Class 1500	Ring Type Joint	ASME B16.20	Carbon Steel						
Stud & Nuts	Stud and Nuts	P-1500-08	¾" - 3 ½"	-	-	-	ASME B1.1	A194 7L, Zn-Ni						
								A320 L7, Zn-Ni						
Paddles	Figure-8 Blank	R8-1500-JC	½" - 6"	According to pipe	1500	Ring Type Joint ASME B16.5	ASME B16.48	Carbon Steel ASTM A516 GR60						
	Paddle Blank	RA-1500-JC	8" - 24"											
	Paddle Spacer	RE-1500-JC												

[illegible]

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
9	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and API 5L requirements. Applicable to both base material and WPS qualification.
11	For API 5L pipe the maximum carbon equivalent is CE iiv = 0,43% or CE pcm = 0,25%.
40	The IW service is only applicable for onshore units.
120	Water valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
138	Welded pipe to API 5L: 100 % RT of weld seam.

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2						
			PIPING SPECIFICATION FOR TOPSIDE							Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -				
Services (see notes): PC - Process (Corrosive Hydrocarbon);								Material: Super Duplex		Class: 1500		Standard: G12						
Pressure Rating (see notes)																		
Temperature (°C)		-46	0	38	50	90												
Max Pressure (barg)		258.6	258.6	258.6	258.6	254.3												
Pipes and Fittings (see notes)																		
Items		Code	Size	Wall	Class	Ends	Standard		Material									
Pipes	Pipe	T-303	½" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S32760) SML										
			2" - 3"	S-80S		BE												
			4" - 8"															
		T-304	10"	0.719"				ASTM A928 (UNS S32760 Cl 1 or 3) WLD										
			12"	0.844"														
			14"	0.938"														
			16"	1.031"														
			18"	1.156"														
			20"	1.281"														
24"	1.531"																	
Fittings	90 Elbow	C01-30	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F55 (UNS S32760)										
	45 Elbow	C02-30																
	Tee	C03-30																
	Cross	C05-30																
	Coupling	C06-30																
	Cap	C11-30																
	Sockolet	C55-30																
	Red Tee	C04-30	¾" - 1 ½"	According to pipe	-	BE	ASME B16.9	ASTM A815 (UNS S32760)										
	Red Coupling	C08-30																
	Weldolet	C12-30																
	90 LR Elbow	C15-32	2" - 24"															
	45 LR Elbow	C16-32																
	90 SR Elbow	C17-32																
	Tee	C20-32																
	Cap	C22-32																
	Cross	C24-32																
	Conc. Red	C18-32	3" - 24"															
	Ecc. Red	C19-32																
	Red Tee	C21-32																
	Nipple	Straight Nipple	N-S131	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A790 (UNS S32760)									
Swage Conc Nipple		N-C132	¾" - 1 ½"	BLE x PSE			MSS SP-95	ASTM A815 (UNS S32760)										
		N-C432	2" - 4"															
Swage Ecc Nipple		N-E132	¾" - 1 ½"															
		N-E432	2" - 4"															
Flanges	Socket Weld (SW)	F-1500-QH	½" - 1 ½"	According to pipe	Class 1500	Ring Type Joint	ASME B16.5	ASTM A182 Gr F55										
	Welding Neck (WN)	F-1500-RH	2" - 24"				-											
	Blind	F-1500-SH	½" - 24"															
Gasket	Ring-Joint	J-1500-AT	1" - 24"	-	Class 1500	Ring Type Joint	ASME B16.20	Stainless Steel AISI 316										
Stud & Nuts	Stud and Nuts	P-1500-08	¾" - 3 ½"	-	-	-	ASME B1.1	A194 7L, Zn-Ni										
								A320 L7, Zn-Ni										
Paddles	Figure-8 Blank	R8-1500-JX	½" - 6"	According to pipe	1500	Ring Type Joint ASME B16.5	ASME B16.48	Superduplex ASTM A240 UNS32760										
	Paddle Blank	RA-1500-JX	8" - 24"															
	Paddle Spacer	RE-1500-JX																

 PETROBRAS		1	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2		
			PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -
Services (see notes): P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);										Material: Duplex		Class: 1500		Standard: G16	
Pressure Rating (see notes)															
Temperature (°C)		-46	0	38	50	100	150	200							
Max Pressure (barg)		258.6	258.6	258.6	258.6	253.3	229.6	213.3							
Pipes and Fittings (see notes)															
Items		Code	Size	Wall	Class	Ends	Standard		Material						
Pipes	Pipe	T-301	½" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S31803) SML							
			2" - 4"	S-80S											
			6"	0.500"											
			8"	0.594"											
		T-302	10"	0.812"											
			12"	0.875"											
			14"	0.938"											
			16"	1.125"											
			18"	1.250"											
			20"	1.375"											
			24"	1.812"											
Fittings	90 Elbow	C01-27	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F51 (UNS S31803)							
	45 Elbow	C02-27													
	Tee	C03-27													
	Cross	C05-27													
	Coupling	C06-27													
	Cap	C11-27													
	Sockolet	C55-27													
	Red Tee	C04-27	¾" - 1 ½"	MSS SP-97											
	Red Coupling	C08-27													
	Weldolet	C12-27	1" - 10"	ASME B16.11											
	90 LR Elbow	C15-29	2" - 24"	According to pipe	-	BE	ASME B16.9	ASTM A815 (UNS S31803)							
	45 LR Elbow	C16-29													
	90 SR Elbow	C17-29													
	Tee	C20-29													
	Cap	C22-29													
	Cross	C24-29													
	Conc. Red	C18-29							3" - 20"						
	Ecc. Red	C19-29													
	Red Tee	C21-29	3" - 24"												
Nipple	Straight Nipple	N-S128	½" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A790 (UNS S31803)							
	Swage Conc Nipple	N-C129	¾" - 1 ½"			BLE x PSE	MSS SP-95	ASTM A815 (UNS S31803)							
		N-C429	2" - 4"												
	Swage Ecc Nipple	N-E129	¾" - 1 ½"												
		N-E429	2" - 4"												
Flanges	Socket Weld (SW)	F-1500-QG	½" - 1 ½"	According to pipe	Class 1500	Ring Type Joint	ASME B16.5	ASTM A182 Gr F51							
	Welding Neck (WN)	F-1500-RG	2" - 20"				-								
	Blind	F-1500-SG	½" - 24"				ASME B16.5								
			1" - 24"												
Gasket	Ring-Joint	J-1500-AT	½" - 24"	-	Class 1500	Ring Type Joint	ASME B16.20	Stainless Steel AISI 316							
Stud & Nuts	Stud and Nuts	P-1500-09	¾" - 3 ½"	-	-	-	ASME B1.1	A194 7L, Zn-Ni							
								A320 L43, Zn-Ni							
Paddles	Figure-8 Blank	R8-1500-JD	½" - 6"	According to pipe	1500	Ring Type Joint ASME B16.5	ASME B16.48	Duplex Stainless Steel ASTM A240 UNS31803							
	Paddle Blank	RA-1500-JD	8" - 24"												
	Paddle Spacer	RE-1500-JD													



Doc:
**I-ET-3010.2Q-1200-200-
P4X-001**

Sheet:

2 of 2

Material:	Duplex

Class:	1500

Standard:
G16

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp			
Check	½" - 1 ½"	VRE-1500-1-D202	-46C to 200C	Ball	½" - 1 ½"	VES-1501-2-D2F6	-30C to 150C	Double Ball	2" - 24"	VES-1500-3-D293	-46C to 210C	Gate	2" - 24"	VGA-1500-1-D231	-50C to 200C			
	2" - 24"	VRE-1500-2-D212				VES-1501-2-D2F7	-46C to 200C			VDE-1500-2-D203	-46C to 150C			Double Ball	3" - 8"	VDE-1500-2-D23F	-46C to 150C	
		VRE-1500-2-D215				VES-1501-3-D2F7	VDE-1500-2-D204			VDE-1500-3-D23F						-46C to 200C		
		VRE-1500-2-D235				VES-1500-2-D241	VDE-1500-2-D2F3			VDE-1500-3-D29G						-46C to 200C		
Needle	½" - 1 ½"	VAG-5000-1-D202	-46C to 200C			2" - 24"	VES-1500-2-D243			-46C to 150C		Gate	½" - 1 ½"	VGA-1501-2-D201	-50C to 200C	Axial On-off	6" - 24"	VAX-1500-3-D2F1
		VAG-5000-1-D2F2	VES-1500-2-D293				VDE-1500-2-D2F4			VGL-1500-2-D201	-46C to 200C							
		VAX-1500-3-D2F1	-50C to 200C				VDE-1500-2-D2F6			VGL-1500-2-D2F1	-46C to 200C							
Axial On-off	6" - 24"	VAX-1500-3-D2F1	-50C to 200C							VES-1500-3-D291	-46C to 210C					Globe	2" - 14"	VGL-1500-2-D201

Run Size	Branch Size																								Legend
	0.5	0.75	1	1.5	2	3	4	6	8	10	12	14	16	18	20	24									
0.5	TEE																WOL - Weldolet								
0.75	RTEE	TEE															TEE - Tee								
1	RTEE	RTEE	TEE														RTEE - Red Tee								
1.5	RTEE	RTEE	RTEE	TEE													HC - Half Coupling								
2	SOC	SOC	SOC	SOC	TEE												SOC - Sockolet								
3	SOC	SOC	SOC	SOC	RTEE	TEE																			
4	SOC	SOC	SOC	SOC	RTEE	RTEE	TEE																		
6	SOC	SOC	SOC	SOC	SOC	WOL	RTEE	RTEE	TEE																
8	SOC	SOC	SOC	SOC	SOC	WOL	WOL	RTEE	RTEE	TEE															
10	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	RTEE	RTEE	TEE														
12	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	RTEE	RTEE	RTEE	TEE													
14	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	TEE												
16	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	TEE											
18	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	TEE										
20	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE									
24	SOC	SOC	SOC	SOC	SOC	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	RTEE	RTEE	RTEE	RTEE	TEE								

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to <u>specify it according the design premisses</u> .
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges ≤ 1 1/2" may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
26	See Annex A for valve casting qualification requirements.
27	See I-ET-3010.XX-1200-940-P4X-001 to check the piping spec range application for H2S and CO2 service.
29	Duplex stainless steell external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
122	Inspection of pipe and piping components shall follow ASTM A923 requirements.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec.note number 3.

 PETROBRAS		I	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2										
								PIPING SPECIFICATION FOR TOPSIDE					Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -					
Services (see notes): P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);											Material: Duplex		Class: 1500		Standard: G16P							
Pressure Rating (see notes)																						
Temperature (°C)		-46	0	38	50	100	130															
Max Pressure (barg)		258.6	258.6	258.6	258.6	253.3	239.1															
Pipes and Fittings (see notes)																						
Items		Code	Size	Wall	Class	Ends	Standard		Material													
Pipes	Pipe	T-301	1" - 1 ½"	S-40S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S31803) SML														
			2" - 4"	S-80S		BE																
			6"	0.500"																		
			8"	0.594"																		
		T-302	10"	0.812"				ASTM A928 (UNS S31803 Cl 1 or 3) WLD														
			12"	0.875"																		
14"	0.938"																					
Fittings	90 Elbow	C01-27	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F51 (UNS S31803)														
	45 Elbow	C02-27																				
	Tee	C03-27																				
	Cross	C05-27																				
	Coupling	C06-27																				
	Cap	C11-27																				
	Socketlet	C55-27																				
	Red Tee	C04-27																				
	Red Coupling	C08-27	¾" - 1 ½"	According to pipe	-	BE	ASME B16.11															
	Weldolet	C12-27													1" - 6"	MSS SP-97						
	90 LR Elbow	C15-29	2" - 3"				ASME B16.9	ASTM A815 (UNS S31803)														
	45 LR Elbow	C16-29																				
	90 SR Elbow	C17-29																				
	Tee	C20-29													2" - 14"							
	Conc. Red	C18-29	3"					NORSOK M-630 NBE2	ASTM A790 (UNS S31803)													
	Ecc. Red	C19-29																				
	Red Tee	C21-29	3" - 12"													ASTM A928 (UNS S31803 Cl 1 or 3)						
	3D 45 Bend	C33-28	4" - 8"																			
	5D 45 Bend	C34-28																				
	3D 90 Bend	C35-28																				
	5D 90 Bend	C36-28							10" - 14"													
	3D 45 Bend	C33-42																				
	5D 45 Bend	C34-42																				
	3D 90 Bend	C35-42																				
	5D 90 Bend	C36-42																				
Nipple	Straight Nipple	N-S128	1" - 1 ½"				According to pipe		-	PBE	ASTM A733	ASTM A790 (UNS S31803)										
Flanges	Socket Weld (SW)	F-1500-QG	1" - 1 ½"				According to pipe	Class 1500	Ring Type Joint	ASME B16.5	ASTM A182 Gr F51											
	Welding Neck (WN)	F-1500-RG	2" - 14"																			
	Blind	F-1500-SG	½" - 14" 1" - 14"	-																		
Gasket	Ring-Joint	J-1500-AT	1" - 14"	-	Class 1500	Ring Type Joint	ASME B16.20	Stainless Steel AISI 316														
Stud & Nuts	Stud and Nuts	P-1500-08	¾" - 2 ¼"	-	-	-	ASME B1.1	A194 7L, Zn-Ni														
								A320 L7, Zn-Ni														
Paddles	Figure-8 Blank	R8-1500-JD	1" - 6"	According to pipe	1500	Ring Type Joint ASME B16.5	ASME B16.48	Duplex Stainless Steel ASTM A240 UNS31803														
	Paddle Blank	RA-1500-JD	8" - 14"																			
	Paddle Spacer	RE-1500-JD																				

 PETROBRAS		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES	Doc: I-ET-3010.2Q-1200-200-P4X-001	Revision: Rev B	Sheet: 2 of 2
		PIPING SPECIFICATION FOR TOPSIDE		Material: Duplex	Class: 1500

Valves (see notes)

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp		
Check	1" - 1 ½"	VRE-1500-1-D202	-46C to 200C	Ball	1" - 1 ½"	VES-1501-2-D2F7	-46C to 200C	Double Ball	1" - 2"	VDE-1500-2-D204	-46C to 150C	Double Ball	3" - 8"	VDE-1500-2-D23F	-46C to 150C		
	2" - 14"	VRE-1500-2-D212				VES-1501-3-D2F7				VDE-1500-2-D2F3				VDE-1500-3-D23F			
		VRE-1500-2-D215				VES-1500-2-D243				VDE-1500-2-D2F4				VDE-1500-3-D29G			
Needle	1" - 1 ½"	VAG-5000-1-D202	-46C to 200C		2" - 14"	VES-1500-3-D293	-46C to 210C			VDE-1500-3-D2F6	-46C to 200C			Globe	2" - 14"	VGL-1500-2-D201	-46C to 200C
		VAG-5000-1-D2F2				VES-5000-4-D294	-46C to 200C									VGL-1500-2-D2F1	
Ball	1" - 1 ½"	VES-1501-2-D2F6	-30C to 150C		Double Ball	1" - 2"	VDE-1500-2-D203			-46C to 150C	Gate			1" - 1 ½"	VGA-1501-2-D201	-50C to 200C	
									2" - 14"	VGA-1500-1-D231							

Branch (see notes)

RUN SIZE	0.5	TEE
	0.75	RTEE TEE
	1	RTEE RTEE TEE
	1.5	RTEE RTEE RTEE TEE
	2	SOC SOC SOC SOC TEE
	3	SOC SOC SOC SOC RTEE TEE
	4	SOC SOC SOC SOC RTEE RTEE TEE
	6	SOC SOC SOC SOC WOL RTEE RTEE TEE
	8	SOC SOC SOC SOC WOL WOL RTEE RTEE TEE
	10	SOC SOC SOC SOC WOL WOL WOL RTEE RTEE TEE
	12	SOC SOC SOC SOC WOL WOL WOL RTEE RTEE RTEE TEE
	14	SOC SOC SOC SOC WOL WOL WOL WOL RTEE RTEE RTEE TEE
	0.5	0.75 1 1.5 2 3 4 6 8 10 12 14
	BRANCH SIZE	

WOL - Weldolet
TEE - Tee
RTEE - Red Tee
HC - Half Coupling
SOC - Sockolet

Notes

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges ≤ 1 1/2" may be used, if strictly necessary .
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
26	See Annex A for valve casting qualification requirements.
27	See I-ET-3010.XX-1200-940-P4X-001 to check the piping spec range application for H2S and CO2 service.
29	Duplex stainless steell external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
44	For any variation between the inside diameter of valve, pipe and any fittings, the sharp edges shall be beveled with maximum slope of 1:4 (30° with the piping wall).
67	Branches with diameter greater than or equal to half the nominal diameter of the pipe shall be fitted with guide bars according to I-ET-3010.00-1200-295-P4X-001 -Requirements for Pig Launcher and Receiver Design.
77	The maximum allow able reduction of wall thickness shall be taken into consideration for 3D and 5D bends.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
122	Inspection of pipe and piping components shall follow ASTM A923 requirements.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.

 PETROBRAS		1	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2							
								PIPING SPECIFICATION FOR TOPSIDE					Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -		
Services (see notes): CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); F - Safety System and Flare; H - Hydraulic Fluid; P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);										Material: SS 316/316L		Class: 2500		Standard: H3					
Pressure Rating (see notes)																			
Temperature (°C)		-100	100	150															
Max Pressure (barg)		351	351	320.8															
Pipes and Fittings (see notes)																			
Items		Code	Size	Wall	Class	Ends	Standard	Material											
Pipes	Pipe	T-322	1"	S-80S	-	PE	ASME B36.19	ASTM A312 TP 316/316L SML											
			1 ½"	0.281"															
		T-323	2"	0.344"		BE	ASME B36.10/B36.19	ASTM A358 Type 316/316L Cl 1 or 3 WLD											
			3"	0.438"															
			4"	0.531"															
			6"	0.864"															
			8"	1.250"															
			10" - 12"	1.500"															
			14"	1.750"															
16"	2.000"																		
Fittings	Weldolet	C12-43	1" - 6"	According to pipe	-	BE	MSS SP-97	ASTM A182 Gr F316/316L											
	90 LR Elbow	C15-44	1" - 16"				ASME B16.9	ASTM A403 Gr WP316/316L											
	45 LR Elbow	C16-44																	
	90 SR Elbow	C17-44																	
	Cap	C22-44																	
	Cross	C24-44	1 ½" - 16"																
	Red Tee	C21-44																	
	Conc. Red	C18-44																	
	Ecc. Red	C19-44																	
Tee	C20-44	2" - 16"																	
Flanges	Blind	F-420-4X	1" - 3"	According to pipe	max 420 bar	-	ISO 6162-2	ASTM A182 Gr F316/316L											
	Compact WN	F-2500-UX	1" - 16"		Class 2500	IX seal ring	ISO 27509												
	Compact Blind	F-2500-VX	1" - 3"		max 420 bar	-	ISO 6162-2												
	Hyd One-Piece Flange	F-420-3X	1" - 16"		Class 2500	Metallic Seal Joint	ISO 27509												
Gasket	Ring-Joint	J-2500-BV	1" - 16"	-	-	-	-	Inconel											
Stud & Nuts	Stud and Nuts	P-2500-11	½" - 2 ½"	-	-	-	ASME B1.1	A194 7LM, Zn-Ni											
		P-2500-13	½" - 2 ¾"					A320 L7M, Zn-Ni											
								UNS N07718 API6ACRA											
Paddles	Figure-8 Blank	R8-2500-CS	1" - 4"	According to pipe	2500	IX Ring Compact flange ISO 27509	ASME B16.48	Stainless Steel ASTM A240 316											
	Paddle Blank	RA-2500-CS	6" - 16"				ISO 27509												
	Paddle Spacer	RE-2500-CS																	

Temp	Type	Size

Branch (see notes)	

BRANCH OFF

SOC - Sockolet

process data low

[illegible]

 PETROBRAS		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2							
		PIPING SPECIFICATION FOR TOPSIDE								Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -					
Services (see notes): P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);								Material: Super Duplex		Class: 2500		Standard: H12P							
Pressure Rating (see notes)																			
Temperature (°C)		-50	38	115															
Max Pressure (barg)		410	410	410															
Pipes and Fittings (see notes)																			
Items		Code	Size	Wall	Class	Ends	Standard	Material											
Pipes	Pipe	T-303	1"	S-80S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S32760) SML											
			1 1/2" - 2"			ASTM A790 (UNS S32760) WLD													
			3" - 4"									0.438"							
			6"									0.625"							
			8"									0.812"							
		10"	1.000"																
		T-304	12"	1.250"		ASTM A928 (UNS S32760 Cl 1 or 3) WLD													
			14"	1.406"															
			16"	1.594"															
			18"	1.781"															
Fittings	90 LR Elbow	C15-32	1" - 3"	According to pipe	-	BE	ASME B16.9	ASTM A815 (UNS S32760)											
	45 LR Elbow	C16-32					MSS SP-97	ASTM A182 Gr F55 (UNS S32760)											
	90 SR Elbow	C17-32	ASTM A815 (UNS S32760)																
	Weldolet	C12-30							1" - 8"										
	Tee	C20-32	1" - 18"																
	Cap	C22-32																	
	Cross	C24-32	1 1/2" - 3"																
	Conc. Red	C18-32																	
	Ecc. Red	C19-32	1 1/2" - 18"																
	Red Tee	C21-32																	
	3D 45 Bend	C33-31	6" - 8"				ASTM A790 (UNS S32760)												
	5D 45 Bend	C34-31																	
	3D 90 Bend	C35-31	10" - 18"				ASTM A928 (UNS S32760 Cl 1 or 3)												
	5D 90 Bend	C36-31																	
	3D 45 Bend	C33-41																	
	3D 90 Bend	C35-41																	
	5D 45 Bend	C34-41	12" - 18"																
	5D 90 Bend	C36-41																	
Nipple	Straight Nipple	N-S231	1" - 1 1/2"	According to pipe	-	BBE	ASTM A733	ASTM A790 (UNS S32760)											
Flanges	Compact WN	F-2500-UH	1" - 18"	According to pipe	Class 2500	IX seal ring	ISO 27509	ASTM A182 Gr F55											
	Compact Blind	F-2500-VH																	
Gasket	Ring-Joint	J-2500-BU	1" - 18"	-	Class 2500	Metallic Seal Joint	ISO 27509	Duplex , ASTM A182 F51											
Stud & Nuts	Stud and Nuts	P-2500-11	1/2" - 2 1/2"	-	-	-	ASME B1.1	A194 7LM, Zn-Ni											
		P-2500-13	1/2" - 2 3/4"											A320 L7M, Zn-Ni					
Paddles	Figure-8 Blank	R8-2500-CX	1" - 4"	According to pipe	2500	IX Ring Compact flange ISO 27509	ASME B16.48	Superduplex ASTM A240 UNS32760											
	Paddle Blank	RA-2500-CX	6" - 18"				ISO 27509												
	Paddle Spacer	RE-2500-CX																	

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2					
								PIPING SPECIFICATION FOR TOPSIDE					Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -
Services (see notes): CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);												Material: Duplex		Class: 2500		Standard: H16	
Pressure Rating (see notes)																	
Temperature (°C)		-50	100	150	200												
Max Pressure (barg)		365	365	365	355.4												
Pipes and Fittings (see notes)																	
Items		Code	Size	Wall	Class	Ends	Standard		Material								
Pipes	Pipe	T-301	1" - 1 ½"	S-80S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S31803) SML									
			2"	0.250"													
			3" - 4"	0.438"													
			6"	0.719"													
			8"	0.875"													
		T-302	10"	1.125"		BE		ASTM A928 (UNS S31803 CI 1 or 3) WLD									
			12"	1.250"													
			14"	1.406"													
			16"	1.594"													
			18"	1.781"													
	20"	1.969"															
	24"	2.344"															
Fittings	Weldolet	C 12-27	1" - 10"	According to pipe	-	BE	MSS SP-97	ASTM A182 Gr F51 (UNS S31803)									
	90 LR Elbow	C 15-29	1" - 24"				ASME B16.9	ASTM A815 (UNS S31803)									
	45 LR Elbow	C 16-29															
	90 SR Elbow	C 17-29															
	Tee	C 20-29															
	Cap	C 22-29															
	Cross	C 24-29	1 ½" - 24"														
	Conc. Red	C 18-29															
	Ecc. Red	C 19-29															
Red Tee	C 21-29	2" - 24"															
Nipple	Straight Nipple	N-S228	1" - 1 ½"	According to pipe	-	BBE	ASTM A733	ASTM A790 (UNS S31803)									
	Swage Conc Nipple	N-C229	1 ½" - 4"				MSS SP-95	ASTM A815 (UNS S31803)									
	Swage Ecc Nipple	N-E229															
Flanges	Compact WN	F-2500-UG	1" - 24"	According to pipe	Class 2500	IX seal ring		ISO 27509	ASTM A182 Gr F51								
	Compact Blind	F-2500-VG															
Gasket	Ring-Joint	J-2500-BU	1" - 24"	-	Class 2500	Metallic Seal Joint	ISO 27509	Duplex , ASTM A182 F51									
Stud & Nuts	Stud and Nuts	P-2500-11	½" - 2 ½"	-	-	-	ASME B1.1	A194 7LM, Zn-Ni									
		P-2500-13	½" - 3 ¼"					A320 L7M, Zn-Ni									
		UNS N07718 API6ACRA															
Paddles	Figure-8 Blank	R8-2500-CD	1" - 4"	According to pipe	2500	IX Ring Compact flange ISO 27509	ASME B16.48	Duplex Stainless Steel ASTM A240 UNS31803									
	Paddle Blank	RA-2500-CD	ISO 27509														
	Paddle Spacer	RE-2500-CD															



Doc:
I-ET-3010.2Q-1200-200-
P4X-001

Revision:	Rev B

2 of 2

Material:	Duplex

Class:	2500

Standard:
H16

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Check	1" - 1 1/2"	VRE-2500-1-D202	-46C to 150C	Ball	1" - 1 1/2"	VES-2502-1-D208	-30C to 120C	Ball	2" - 24"	VES-2510-2-D218	-30C to 150C	Axial On-off	6" - 12"	VAX-2510-3-D2F1	-50C to 150C
	2" - 12"	VRE-2510-2-D212				VES-2502-1-D209	-46C to 150C			VES-2510-2-D234	-46C to 150C			VAX-2510-4-D201	
		VRE-2510-2-D215				VES-2502-2-D208	-30C to 120C			VES-2510-2-D238	-46C to 150C			VAX-2510-4-D202	
		VRE-2510-2-D235				VES-2502-2-D209	-46C to 150C			VES-2510-2-D270	-50C to 200C			VAX-2510-4-D2F1	
		VAX-2510-3-D201				VES-2502-2-D2F8	-30C to 120C			VES-2510-2-D272	-50C to 200C			VAX-2510-4-D2F2	
Axial On-off	6" - 12"	VAX-2510-3-D2F1	VES-2502-2-D2F9			-46C to 200C	Gate	1" - 1 1/2"	VGA-2501-1-D201	-50C to 150C	Globe	2" - 3"	VGL-2500-2-D201	-46C to 150C	
		VAX-2510-4-D201	VES-2502-3-D209			-46C to 150C		4" - 12"	VGA-2510-2-D231	VGL-2500-2-D2F1					
		VAX-2510-4-D202	VES-2502-3-D2F9			-46C to 150C	Double Ball	3" - 8"	VDE-2510-2-D27F	-50C to 200C			VGL-2510-2-D201		
		VAX-2510-4-D2F1	VES-2500-3-D29G			-46C to 210C			Axial On-off	6" - 12"			VAX-2510-3-D201		-50C to 150C
		VAX-2510-4-D2F2	VES-2510-2-D214			0C to 150C									

	1	TEE								
	1.5	RTEE	TEE							
	2	WOL	RTEE	TEE						
	3	WOL	WOL	RTEE	TEE					
	4	WOL	WOL	WOL	RTEE	TEE				
	5	WOL	WOL	WOL	WOL	RTEE	TEE			
	6	WOL	WOL	WOL	WOL	WOL	RTEE	TEE		
	8	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	TEE	
	10	WOL	WOL	WOL	WOL	WOL	WOL	WOL	RTEE	
	12	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	
	14	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	
	16	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	
	18	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	
	20	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	
	24	WOL	WOL	WOL	WOL	WOL	WOL	WOL	WOL	
	1	1.5	2	3	4	6	8	10	12	
	BRANCH SIZE									

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges ≤ 1 1/2" may be used, if strictly necessary.
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
26	See Annex A for valve casting qualification requirements.
27	See I-ET-3010.XX-1200-940-P4X-001 to check the piping spec range application for H2S and CO2 service.
29	Duplex stainless steell external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
122	Inspection of pipe and piping components shall follow ASTM A923 requirements.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: Inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
131	ASME flanges until NPS 12 may be used only for PSV assembly.

 PETROBRAS		1	OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2													
								PIPING SPECIFICATION FOR TOPSIDE					Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -								
Services (see notes): D - Diesel; IW - De-Aerated Sea Water Injection; PC - Process (Corrosive Hydrocarbon);								Material: CS Inconel Clad.		Class: 2500		Standard: H30													
Pressure Rating (see notes)																									
Temperature (°C)		-20		120																					
Max Pressure (barg)		351		351																					
Pipes and Fittings (see notes)																									
Items		Code	Size	Wall	Class	Ends	Standard	Material																	
Pipes	Pipe	T-203	1" - 1 ½"	S-80S	-	PE	ASME B36.10/B36.19	ASTM B444 Gr 1 (UNS N06625) SML																	
			2" - 3"			BE																			
		T-107	6" - 12"	S-160			ASME B36.10	API 5L Gr X65 PSL 2 (SML or WLD SAW)																	
			14"											2.000"											
16" - 24"	S-160		API 5L Gr X65 PSL 2 WLD SAW																						
Fittings	Weldolet	C12-33							1" - 3"	According to pipe	-	BE	MSS SP-97	ASTM B366 (UNS N06625)											
	90 LR Elbow	C15-33																							
	45 LR Elbow	C16-33																							
	90 SR Elbow	C17-33																							
	Tee	C20-33																							
	Cap	C22-33																							
	Cross	C24-33	1" - 10"	ASME B16.9	ASTM A694 Gr F65																				
	Weldolet	C12-22																							
	Conc. Red	C18-33																							
	Ecc. Red	C19-33																							
	Red Tee	C21-33																							
	90 LR Elbow	C15-22																							
	45 LR Elbow	C16-22	1 ½" - 3"	ASME B16.9	ASTM B366 (UNS N06625)																				
	90 SR Elbow	C17-22																							
	Tee	C20-22																							
	Cap	C22-22																							
	Cross	C24-22																							
	Conc. Red	C18-22																							
	Ecc. Red	C19-22	8" - 24"	MSS SP-75	ASTM A860 WPHY65																				
	Red Tee	C21-22																							
Nipple	Straight Nipple	N-S239	1" - 1 ½"	According to pipe	-	BBE	ASTM A733	ASTM B444 Gr 1 (UNS N06625)																	
	Swage Conc Nipple	N-C233	1 ½" - 3"				MSS SP-95							ASTM B366 (UNS N06625)											
	Swage Ecc Nipple	N-E233																							
Flanges	Compact WN	F-2500-UL	1" - 3"	According to pipe	Class 2500	IX seal ring	ISO 27509	ASTM B564 (UNS N06625)																	
		F-2500-UD	6" - 24"											ASTM A694 Gr F65 Cladded											
	Compact Blind	F-2500-VL	1" - 3"																	ASTM B564 (UNS N06625)					
		F-2500-VD	4" - 24"																						
Gasket	Ring-Joint	J-2500-BV	4" - 24"	-	Class 2500	Metallic Seal Joint	ISO 27509	Inconel																	
Stud & Nuts	Stud and Nuts	P-2500-11	½" - 3 ¼"	-	-	-	ASME B1.1	A194 7LM, Zn-Ni																	
								A320 L7M, Zn-Ni																	
Paddles	Figure-8 Blank	R8-2500-CI	1" - 4"	According to pipe	2500	IX Ring Compact flange ISO 27509	ASME B16.48	Carbon Steel ASTM A516 GR60 with Inconel 625 layer																	
	Paddle Blank	RA-2500-CI	6" - 24"				ISO 27509																		
	Paddle Spacer	RE-2500-CI																							



Doc:
I-ET-3010.2Q-1200-200-
P4X-001

2 of 2

Material:	CS Inconel Clad.

Standard:
H30

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Check	1" - 1 ½"	VRE-2500-1-N102	-100C to 400C	Ball	1" - 1 ½"	VES-2502-2-N109	-100C to 200C	Ball	2" - 24"	VES-2510-2-C572	-29C to 200C	Double Ball	1" - 2"	VDE-2510-2-N103	-46C to 150C
		VRE-2510-2-C512	-29C to 150C			VES-2502-2-N1F8	-30C to 120C			VES-2510-2-C57F				VDE-2510-2-N104	
	2" - 24"	VRE-2510-2-C515	-29C to 150C			VES-2502-2-N1F9	-100C to 200C			VES-2510-2-C57G				VDE-2510-2-N1F3	
		VRE-2510-2-C535	-29C to 200C			VES-2502-3-N109	VES-2510-3-C572			VDE-2510-2-N1F4					
Needle	1" - 1 ½"	VAG-6000-1-N102	-100C to 400C			VES-2502-3-N1F9	VES-2510-3-C573			VDE-2510-2-C515					
		VAG-6000-1-N1F2	-100C to 400C			VES-2510R-2-C534	VES-2510-3-C57G			VDE-2510-2-C51F					
Axial On-off	6" - 24"	VAX-2510-3-D301	-50C to 150C			2" - 24"	VES-2510-2-C514			-29C to 150C		4" - 24"	VES-2510-4-C574	VAX-2510-3-D301	
		VAX-2510-4-D301					VES-2510-2-C534		VES-2510-4-C575				VAX-2510-4-D301		
		VAX-2510-4-D302					VES-2510-2-C538	VES-2510-4-C57E	VAX-2510-4-D302						
		VES-2502-1-N108			-30C to 120C		VES-2510-2-C53F	VGL-2510-2-C501							
Ball	1" - 1 ½"	VES-2502-1-N109	-100C to 200C		VES-2510-2-C53G					VGL-2510-2-C5F1	-29C to 400C				
		VES-2502-2-N108	-30C to 120C		VES-2510-2-C570		-29C to 200C								

RUN SIZE	1	TEE																							WOL - Weldolet
	1.5	RTEE TEE																							
	2	RTEE RTEE TEE																							
	3	WOL RTEE RTEE TEE																							
	4	WOL WOL RTEE RTEE TEE																							
	6	WOL WOL WOL RTEE RTEE TEE																							
	8	WOL WOL WOL WOL RTEE RTEE TEE																							
	10	WOL WOL WOL WOL WOL RTEE RTEE TEE																							
	12	WOL WOL WOL WOL WOL WOL RTEE RTEE TEE																							
	14	WOL WOL WOL WOL WOL WOL WOL RTEE RTEE TEE									RTEE - Red Tee														
16	WOL WOL WOL WOL WOL WOL WOL RTEE RTEE TEE																								
18	WOL WOL WOL WOL WOL WOL WOL RTEE RTEE TEE																								
20	WOL WOL WOL WOL WOL WOL WOL RTEE RTEE TEE																								
24	WOL WOL WOL WOL WOL WOL WOL RTEE RTEE TEE																								
BRANCH SIZE																									
1 1.5 2 3 4 6 8 10 12 14 16 18 20 24																									
SOC - Sockolet																									

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
9	Charpy impact test is required at the minimum temperature of this spec, according to ASME B31.3 and API 5L requirements. Applicable to both base material and WPS qualification.
11	For API 5L pipe the maximum carbon equivalent is CE _{iiw} = 0,43% or CE _{pcm} = 0,25%.
27	See I-ET-3010.XX-1200-940-P4X-001 to check the piping spec range application for H2S and CO2 service.
42	Piping, fittings and accessories shall have internal Inconel® 625 cladding according to I-ET-3010.00-1200-955-P4X-001 - Welding.
70	Use this Spec only up to SDV.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
131	ASME flanges until NPS 12 may be used only for PSV assembly.
138	Welded pipe to API 5L: 100 % RT of weld seam.
159	Weld overlay shall fully extend on flange face up to groove outer diameter or raised face outer diameter. The minimum thickness for inconel layer to be mesured after machining. This note is valid for piping and valve flanges.

 PETROBRAS			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES					Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2					
								PIPING SPECIFICATION FOR TOPSIDE					Issued by : SRGE/ESUP		Code: ASME B31.3		Corr. Allow. : -
Services (see notes): CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); P - Process (non-corrosive hydrocarbon); PC - Process (Corrosive Hydrocarbon);												Material: Super Duplex		Class: 10000		Standard: J12	
Pressure Rating (see notes)																	
Temperature (°C)		-50	38	100	120												
Max Pressure (barg)		620	620	620	615												
Pipes and Fittings (see notes)																	
Items		Code	Size	Wall	Class	Ends	Standard	Material									
Pipes	Pipe	T-303	1"	S-80S	-	PE	ASME B36.10/B36.19	ASTM A790 (UNS S32760) SML									
			1 ½"	0.281"		BE											
			2"	0.344"													
			3"	0.600"													
			4"	0.674"													
			6"	0.875"													
		T-304	8"	1.250"		ASTM A790 (UNS S32760) WLD											
			10"	1.500"													
			12" - 14"	2.000"										ASTM A928 (UNS S32760 CI 1 or 3) WLD			
16"	2.250"																
Fittings	Weldolet	C12-30	1" - 6"	According to pipe	-	BE	MSS SP-97	ASTM A182 Gr F55 (UNS S32760)									
	90 LR Elbow	C15-32	1" - 16"				ASME B16.9	ASTM A815 (UNS S32760)									
	45 LR Elbow	C16-32															
	90 SR Elbow	C17-32															
	Tee	C20-32															
	Cap	C22-32															
	Cross	C24-32															
	Conc. Red	C18-32	1 ½" - 16"														
	Ecc. Red	C19-32															
Red Tee	C21-32																
Nipple	Straight Nipple	N-S231	1" - 1 ½"	According to pipe	-	BBE	ASTM A733	ASTM A790 (UNS S32760)									
	Swage Conc Nipple	N-C232	1 ½" - 4"				MSS SP-95	ASTM A815 (UNS S32760)									
	Swage Ecc Nipple	N-E232															
Flanges	Flange WN API 6BX	F-10000-RH	1" - 16"	According to pipe	API 10000	Ring Type Joint	API 6A	ASTM A182 Gr F55									
	Blind API 6BX	F-10000-SH	1" - 2"				-	ASTM A182 Gr F51									
	Flange x female NPT	F-10000-TG															
Gasket	Ring-Joint	J-10000-AT	1" - 16"	-	API 10000	Ring Type Joint	API 6A	Stainless Steel AISI 316									
Stud & Nuts	Stud and Nuts	P-10000-08	¾" - 1 ¾"	-	-	-	ASME B1.1	A194 7L, Zn-Ni									
								A320 L7, Zn-Ni									
Paddles	Paddle Blank	RA-10000-AX	1" - 16"	According to pipe	API 10000	Ring Joint API 6A	ASME B16.48	Superduplex ASTM A240 UNS32760									
	Paddle Spacer	RE-10000-AX															

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES				Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B	Sheet: 2 of 2					
			PIPING SPECIFICATION FOR TOPSIDE					Material: Super Duplex	Class: 10000	Standard: J12					
Valves (see notes)															
Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Ball	1" - 2"	VES-10000-2-D334	-50C to 150C	Double Ball	1 1/4" - 11"	VDE-10000-2-D3F3	-50C to 150C	Gate	-	VGA-10000-4-D311	-50C to 150C	Check	1" - 16"	VRE-10000-2-D325	-50C to 120C
Double Ball	1 1/4" - 11"	VDE-10000-2-D301	-30C to 150C			VDE-10000-2-D3F5	VGA-10000-4-D31F			VRE-10000-2-D335	-50C to 150C				
		VDE-10000-2-D303	-50C to 150C	VGA-10000-2-D31F	VGL-10000-2-D301	-50C to 150C									
		VDE-10000-2-D3F1	-30C to 150C	VGA-10000-3-D311	VGL-10000-2-D3F1										
		VDE-10000-2-D3F2		VGA-10000-3-D31F											
Branch (see notes)															
1 1.5 2 3 4 6 8 10 12 14 16 1 1.5 2 3 4 6 8 10 12 14 16 1 1.5 2 3 4 6 8 10 12 14 16															

WOL - Weldolet

TEE - Tee

RTEE - Red Tee

HC - Half Coupling

SOC - Sockolet

		OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES						Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2			
		PIPING SPECIFICATION FOR TOPSIDE								Issued by: SRGE/ESUP		Code: ASME B31.3		Corr. Allow.: -	
		Services (see notes): CI - Chemical Injection (non-corrosive); CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); F - Safety System and Flare;								Material: Tubing 6Mo		Class: -		Standard: T60A	
Pressure Rating (see notes)															
Temperature (°C)		0		60											
Max Pressure (barg)		150		150											
Pipes and Fittings (see notes)															
Items		Code	Size	Wall	Class	Ends	Standard			Material					
Pipes	Pipe	T-325	1/4"	0.049"	-	PE	-						A269 (UNS S31254) SML		
			3/8" - 1/2"												
			5/8"												
			3/4"												
			1"	0.083"											
Fittings	Compression Fitting	C60-40	1/4" - 1"	-	6000	OD x THD	according to manufacturer						Compression fitting with double ferrule, body AISI 316, ferrules and nuts in AISI 316.		
						OD x SW									
						OD x OD									



Doc:
I-ET-3010.2Q-1200-200-
P4X-001

Sheet:
2 of 2

Material:	Tubing 6Mo

Class:	

Standard:
T60A

Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Instrumentation Needle	¼" - 1"	VAGI-6000-1-S201	0C to 200C	Instrumentation Double Ball	¼" - 1"	VDEI-6000-1-S201	0C to 200C	Instrumentation Ball	¼" - 1"	VESI-6000-1-S202	0C to 200C	Instrumentation Check	¼" - 1"	VREI-6000-1-S202	0C to 90C
		VAGI-6000-1-S202		Instrumentation Ball	¼" - 1"	VESI-6000-1-S201	0C to 200C	Instrumentation Check	¼" - 1"	VREI-6000-1-S201	0C to 90C				

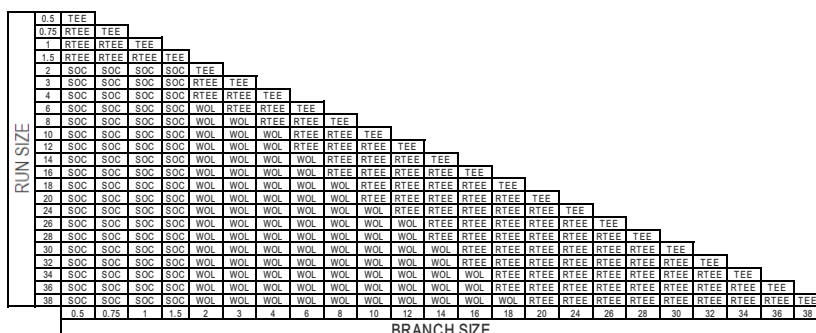
[illegible]

2	See Annex A for valves requirements and general selection criteria.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements. ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
81	The tubing shall be prepared (cut, burred, and bent) only with the tools recommended by the OD fittings manufacturer.
89	The maximum work pressure for fittings shall be above the maximum work pressure of the tubing for all operation conditions.
93	Seal or fillet welds are not allowed in OD fittings and valves assembly.
95	Proper tools shall be used to assemble the OD fittings (feeler gauge, wrenches, etc.) in accordance with the fittings manufacturer instructions. Special attention shall be given for assemblies with OD 1" and larger, where preswage must be done.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: Inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
140	Shall be followed the criteria for purchase, design, construction, assembly and inspection of tubing system established in the technical specification I-ET-3010.00-1200-800-P4X-015.
141	Hydrotest according to ASME 31.3 and limited to maximum working pressure qualified by manufacturer.

			OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES				Doc: I-ET-3010.2Q-1200-200-P4X-001		Revision: Rev B		Sheet 1 of 2	
							PIPING SPECIFICATION FOR TOPSIDE				Issued by : SRGE/ESUP	
Services (see notes): CNI - Corrosive Chemical Injection (Except Sodium Hypochlorite and DBNPA); D - Diesel; DO - Carbon Dioxide (DRY); F - Safety System and Flare; FG - Fuel Gas; G - Glycol; H - Hydraulic Fluid; PC - Process (Corrosive Hydrocarbon);							Material: SS 316/316L		Class: 300		Standard: C3.	
Pressure Rating (see notes)												
Temperature (°C)		-100	38	50	100	150						
Max Pressure (barg)		49.6	49.6	48.1	42.2	38.5						
Pipes and Fittings (see notes)												
Items		Code	Size	Wall	Class	Ends	Standard	Material				
Pipes	Pipe	T-322	½" - 1 ½"	S-40S	-	PE	ASME B36.19	ASTM A312 TP 316/316L SML				
		T-323	2" - 20"	S-80S		BE	ASME B36.10/B36.19	ASTM A358 Type 316/316L Cl 1 or 3 WLD				
			24"	0.500"								
			26"	0.500"								
			28" - 30"	0.562"								
36" - 38"	0.688"											
Fittings	90 Elbow	C01-43	½" - 1 ½"	-	3000	SW	ASME B16.11	ASTM A182 Gr F316/316L				
	45 Elbow	C02-43										
	Tee	C03-43										
	Cross	C05-43										
	Coupling	C06-43										
	Cap	C11-43	¾" - 1 ½"	According to pipe	-	BE	MSS SP-97					
	Sockolet	C55-43					ASME B16.11					
	Red Tee	C04-43										
	Red Coupling	C08-43	1 ½" - 20"				MSS SP-97					
	Sweepolet	C57-43					ASME B16.9	ASTM A403 Gr WP316/316L				
	Weldolet	C12-43										
	90 LR Elbow	C15-44										
	45 LR Elbow	C16-44										
	90 SR Elbow	C17-44										
	Tee	C20-44										
	Cap	C22-44										
	Cross	C24-44										
	Conc. Red	C18-44										
	Ecc. Red	C19-44										
	Red Tee	C21-44										
Nipple	Straight Nipple	N-S145	1" - 1 ½"	According to pipe	-	PBE	ASTM A733	ASTM A312 TP316/316L				
	Swage Conc Nipple	N-C144	¾" - 1 ½"			BLE x PSE	MSS SP-95	ASTM A403 Gr WP316/316L				
		N-C444	2" - 4"									
	Swage Ecc Nipple	N-E144	¾" - 1 ½"									
		N-E444	2" - 4"									
Flanges	Socket Weld (SW)	F-300-JX	½" - 1 ½"	According to pipe	Class 300	Raised Face	ASME B16.5	ASTM A182 Gr F316/316L				
	Welding Neck (WN)	F-300-KX	2" - 24"				ASME B16.47 A					
	Blind	F-350-4X	26" - 38"		max 350 bar	-	ISO 6162-1					
			½" - 3"				-					
		F-300-LX	½" - 38"		Class 300	Raised Face	ASME B16.47 A					
		1" - 36"	ASME B16.5									
	Flange WN API 6BX	F-10000-6X	2" - 10"		API 10000	studded type 6BX (stud and nuts included)	API 6A					
	Hyd One-Piece Flange	F-350-3X	½" - 3"		max 350 bar	-	ISO 6162-1					
Gasket	Spiral-Wound	J-300-EH	½" - 38"	-	Class 300	Raised Face	ASME B16.20	AISI 316/graphite				
Stud & Nuts	Stud and Nuts	P-300-08	½" - 1 ½"	-	-	-	ASME B1.1	A194 7L, Zn-Ni				
								A320 L7, Zn-Ni				
Bolt	2 x Hex Bolt	H-300-02	½" - 1 ½"	According to pipe	-	-	ASME B1.1	ASTM A320 GR L7				
Paddles	Figure-8 Blank	R8-300-RS	½" - 10"	According to pipe	300	Raised Face ASME B16.5	ASME B16.48	Stainless Steel ASTM A240 316				
	Paddle Blank	RA-300-RS										
	Paddle Spacer	RE-300-RS										

Valves (see notes)															
Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp	Type	Size	CODE	Temp
Check	½" - 1 ½"	VRE-800-1-S202	-100C to 400C	Ball	½" - 1 ½"	VES-801-3-S2F2	-46C to 150C	Ball	2" - 30"	VES-300-3-S226	0C to 150C	Double Ball	½" - 2"	VDE-300-2-S208	-100C to 340C
		VRE-800-2-S202				VES-801-3-S2F5	-100C to 200C			VES-300-3-S227				VDE-300-2-S2F1	-30C to 150C
Needle	½" - 1 ½"	VAG-3000-1-S201	-100C to 200C		2" - 30"	VES-300-1-S210	-30C to 150C		-46C to 150C	VES-300-3-S236			VDE-300-2-S2F2		
		VAG-3000-1-S202	-100C to 400C			VES-300-1-S220	0C to 150C			VES-300-3-S237			VDE-300-2-S2F3	-100C to 150C	
		VAG-3000-1-S2F1	-100C to 200C			VES-300-1-S230	-46C to 150C			VES-300-3-S23G			VDE-300-2-S2F4		
		VAG-3000-1-S2F2	-100C to 400C			VES-300-2-S210				VES-300-3-S252			VDE-300-2-S2F5	-100C to 200C	
						VES-300-2-S216	-30C to 150C			VES-300-3-S253	-30C to 150C		VDE-300-2-S2F6		
Butterfly	3" - 20"	VBO-300-2-S211	-46C to 150C			VES-300-2-S21F	-30C to 150C		VES-300-3-S25G		VDE-300-2-S2F7		-100C to 340C		
		VBO-300-2-S213							VES-300-3-S262		VDE-300-2-S2F8				
		VBO-300-2-S231	-100C to 150C						VES-300-3-S263	0C to 210C					
		VBO-300-2-S233							VES-300-3-S272						
Ball	½" - 1 ½"	VES-801-1-S201	-30C to 150C				VES-300-2-S220		0C to 150C	VES-300-3-S27G					
		VES-801-1-S202	-46C to 150C							VES-300-3-S273	-100C to 200C				
		VES-801-1-S205	-100C to 200C							VDE-300-2-S201					
		VES-801-2-S201	-30C to 150C	VDE-300-2-S202				-30C to 150C							
		VES-801-2-S202	-46C to 150C	VDE-300-2-S203				-100C to 150C							
		VES-801-2-S205	-100C to 200C	VDE-300-2-S204											
		VES-801-2-S2F1	-30C to 150C	VDE-300-2-S205	-100C to 200C										
		VES-801-2-S2F2	-46C to 150C	VDE-300-2-S206											
		VES-801-2-S2F5	-100C to 200C	VDE-300-2-S207	-100C to 340C										
		VES-801-3-S205													
		VES-801-3-S2F1	-30C to 150C												

Branch (see notes)



WOL - Weldolet

TEE - Tee

RTFF - Red Tee

HC - Half Coupling

SOC - Sockolet

Notes

1	On the spec valve list, it may have valves codes which contain values of process data lower than spec limits. It shall be verified all valve process data (e.g.: pressure, temperature) in order to specify it according the design premisses.
2	See Annex A for valves requirements and general selection criteria.
3	Bolts,nuts and gaskets (only RTJ gaskets) must be Zn-Ni coated according to Annex B.
4	See Annex C for instruments, drains and vents typical piping arrangement.
5	Flanges $\leq 1\ 1/2"$ may be used, if strictly necessary .
6	See Annex E for Isolation gasket specifications.
7	Welding and Welding Inspection activities shall follow the requeriments of these documents: I-ET-3010.00-1200-955-P4X-001-Welding.
8	All valves, pipes and components specified for hydrogen sulfide service shall be in accordance with ISO 15156 requirements: ASTM A 193 B7 / ASTM A 320 L7 studs with ASME B 16.5, ASME B 16.47 or API 6A flanges are acceptable for sour service fluids.
51	Stainless Steel external coating shall be applied for the temperature limits according to I-ET-3010.00-1200-956-P4X-002 - General Painting.
55	This spec for FG service is applicable for piping downstream the filters.
67	Branches with diameter greater than or equal to half the nominal diameter of the pipe shall be fitted with guide bars according to I-ET-3010.00-1200-295-P4X-001 -Requirements for Pig Launcher and Receiver Design.
68	This Spec shall be applied for distribution system of CO2, after directional valves.
120	Wafer valves shall not be used with flammable or combustible services, according to NFPA definition.
125	Materials listed in this spec shall meet the requirements described in the notes and annexes of this document and also the requirements of the specific data sheet in IOGP S-563 as applicable. In case of conflict of criteria Petrobras shall be consulted. It shall be highlighted that the IOGP requirements is not applicable for: inconel 625 coating, which shall follow I-ET-3010.00-1200-955-P4X-001; supplementary NACE requirement for carbon steel which shall follow I-ET-3010.XX-1200-940-P4X-001; and coating for bolts and nuts shall follow spec note number 3.
127	ISO 6162-1/2 flanges may be used only for H - Hydraulic Fluid.
146	Seamless pipe is acceptable in place of welded pipe. The thickness need to be updated by designer.
156	Only for non nace service studs A 320 L7 and L43 may be used as alternative.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
ANNEX A – VALVES (Mandatory)			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL	SHEET: 2 OF 86	
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	

TABLE OF CONTENTS	
A.1.	SCOPE..... 7
A.2.	NORMATIVE REFERENCES 7
A.3.	TERMS AND DEFINITIONS 10
A.4.	SYMBOLS AND ABBREVIATED TERMS 11
A.5.	VALVE SELECTION GUIDE 13
A.5.1.	INTRODUCTION 13
A.5.2.	VALVE SPECIFICATION LEVEL (VSL) - CLASSIFICATION..... 13
A.5.3.	VALVE SPECIFICATION LEVEL (VSL) - REQUIREMENTS 14
A.5.4.	VALVE FEATURES AND TYPICAL APLICATIONS 15
A.6.	GENERAL DESIGN REQUIREMENTS 17
A.6.1.	VALVE..... 17
A.6.1.1.	GENERAL 17
A.6.1.2.	MATERIAL CLASSES 18
A.6.1.3.	BODY MATERIAL 18
A.6.1.4.	FIRE TESTED VALVES 20
A.6.1.5.	FIRE SAFE VALVES..... 20
A.6.1.6.	FUGITIVE EMISSIONS..... 20
A.6.1.7.	SAFETY INTEGRITY LEVEL 22
A.6.1.8.	BOLTING..... 22
A.6.1.9.	PAINTING..... 23
A.6.1.10.	MARKING AND NAMEPLATE..... 24
A.6.2.	ACTUATOR..... 24
A.6.2.1.	GENERAL 24
A.6.2.2.	ACTUATOR TYPE 25
A.7.	SPECIFIC DESIGN REQUIREMENTS 26
A.7.1.	BALL VALVE 26
A.7.1.1.	DESIGN REQUIREMENTS 26
A.7.1.2.	DESIGN STANDARD 27
A.7.1.3.	MOUTING TYPE 27
A.7.1.4.	ISOLATION VALVE CONFIGURATION 28
A.7.1.5.	NON-METALLIC SEALS..... 31
A.7.1.6.	TYPICAL CONFIGURATIONS 33
A.7.1.7.	MATERIALS CONFIGURATIONS 39
A.7.1.8.	ball valves according to iogp s-562 43
A.7.2.	GATE VALVE..... 44
A.7.2.1.	DESIGN REQUIREMENTS 44
A.7.2.2.	DESIGN STANDARD 45
A.7.2.3.	NON-METALLIC SEALS..... 45

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL	SHEET: 3 OF 86	
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
A.7.2.4. TYPICAL CONFIGURATIONS 45 A.7.2.5. GATE VALVES ACCORDING TO IOGP S-611 47 A.7.3. CHECK VALVE 47 A.7.3.1. DESIGN REQUIREMENTS 47 A.7.3.2. DESIGN STANDARD 48 A.7.3.3. NON-METALLIC SEALS 48 A.7.3.4. TYPICAL CONFIGURATIONS 49 A.7.4. GLOBE VALVE 51 A.7.4.1. DESIGN REQUIREMENTS 51 A.7.4.2. DESIGN STANDARD 51 A.7.4.3. TYPICAL CONFIGURATIONS 51 A.7.5. BUTTERFLY VALVE 52 A.7.5.1. DESIGN REQUIREMENTS 52 A.7.5.2. DESIGN STANDARD 53 A.7.5.3. NON-METALLIC SEALS 53 A.7.5.4. MATERIAL CONFIGURATION 54 A.7.5.5. TYPICAL CONFIGURATIONS 55 A.7.6. NON-METALLIC VALVE 56 A.7.6.1. TYPICAL CONFIGURATION 56 A.7.6.2. DESIGN REQUIREMENTS FOR NON-METALLIC VALVE 56 A.8. MATERIALS & FABRICATION 58 A.8.1. REQUIREMENTS FOR CASTING OF DUPLEX & SUPERDUPLEX 58 A.8.1.1. SCOPE 58 A.8.1.2. DOCUMENTATION 58 A.8.1.3. CHEMICAL REQUIREMENTS 58 A.8.1.4. HEAT TREATMENT 59 A.8.1.5. MECHANICAL AND METALLURGICAL TESTS 60 A.8.1.6. CASTING INSPECTION 60 A.8.1.7. LIQUID PENETRANT INSPECTION (LPI) 61 A.8.1.9. ULTRASONIC INSPECTION 62 A.8.1.10. REPAIRS 63 A.8.1.11. MACHINING 63 A.8.2. COATINGS 64 A.8.2.1. METALLIC COATING 64 A.8.2.2. HARD COATING 65 A.8.2.3. NON-METALLIC COATING 66 A.8.3. ALTERNATIVE MATERIALS 67 A.8.4. DRAIN, VENTS AND injection connections 68 A.9. INSPECTION & TESTING 68			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 4 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
A.9.1. INSPECTION REQUIREMENTS..... 68 A.9.1.1. INSPECTION AND TESTING PLAN (ITP)..... 68 A.9.1.2. RECEIVING INSPECTION 68 A.9.1.3. NON-DESTRUCTIVE TESTING (NDT) 69 A.9.2. DESIGN VALIDATION 70 A.9.3. FACTORY ACCEPTANCE TEST (FAT) REQUIREMENTS 71 A.9.3.1. TEST MEDIUM..... 71 A.9.3.2. TEST BENCH 71 A.9.3.3. MONITORING PORTS FOR ACTUATED VALVES 72 A.9.3.4. LEAKAGE IDENTIFICATION 72 A.9.3.5. FAT SEQUENCE 73 A.9.3.6. FUGITIVE EMISSIONS FAT 75 A.9.3.7. HIPPS VALVE IN PLACE TEST 75 A.10. HANDLING, STORING & SHIPPING 76 A.11. DOCUMENTATION..... 76 A.11.1. DOCUMENTATION FORMATS & QUALITY 76 A.11.2. DATA BOOK 77 A.11.3. USER MANUAL 77 A.11.4. DOCUMENTATION OF PRESERVATION, PROTECTION AND PACKING..... 78 A.11.5. VALVE CODE 78 A.11.5.1. DESCRIPTION 78 A.11.5.2. BASIC STRUCTURE OF A VALVE CODE 78 A.11.5.3. CONCECPT OF BASIC GROUPS 79 A.11.5.4. SPECIFIC STRUCTURE OF A VALVE CODE 80 A.11.5.5. CONCECPT OF SPECIFIC GROUPS..... 81 A.12. VALVE DATASHEET - VDS 86			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 5 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

FIGURES

FIGURE A.1 – EXAMPLE OF USE OF DRAIN AND VENT PLUG.....	18
FIGURE A.2 – EXAMPLE OF NAMEPLATES WITH INDICATION OF SEAT CONFIGURATION.....	24
FIGURE A.3 – BALL TYPE.....	27
FIGURE A.4 – SPE/SR SEAT ASSEMBLY MECHANISM (ILLUSTRATION ON A SOFT BALL VALVE).....	28
FIGURE A.5 – DPE SEAT ASSEMBLY MECHANISM (ILLUSTRATION ON A SOFT BALL VALVE).....	29
FIGURE A.6 – DBB FEATURE (REF.: DOUBLE BLOCK AND BLEED - TYPE B OF API 6D).....	29
FIGURE A.7 – DIB-1 FEATURE (REF.: DOUBLE ISOLATION AND BLEED - TYPE B OF API 6D).....	29
FIGURE A.8 – DIB-2 FEATURE (REF.: DOUBLE ISOLATION AND BLEED - TYPE B OF API 6D).....	30
FIGURE A.9 – EXAMPLE OF DIB-2 VALVES ASSEMBLY IN DIFFERENT CONFIGURATIONS.....	30
FIGURE A.10 – EXAMPLES OF ASSEMBLY CONFIGURATION OF CATEGORY B BUTTERFLY VALVES WITH NOT EQUAL PRESSURE RATING IN BOTH DIRECTIONS.....	53
FIGURE A.11 – ILLUSTRATION OF TYPICAL CATEGORY B (TRIPLE OFFSET) SEAT CONFIGURATIONS.....	54

TABLES

TABLE A.1 – CLASSIFICATION OF ACCUMULATED ENERGY AND HIGH DEMAND VALVES	13
TABLE A.2 – VALVE SPECIFICATION LEVEL (VSL) CLASSIFICATION	14
TABLE A.3 – VALVE SPECIFICATION LEVEL (VSL) REQUIREMENTS.....	14
TABLE A.4 - VALVE FEATURES AND TYPICAL APPLICATIONS.....	16
TABLE A.5 – MATERIAL CLASSES.....	18
TABLE A.6 – BODY MATERIAL, ACCORDING TO MATERIAL CLASS.....	18
TABLE A.7 – PROCESS FABRICATION FOR BODY MATERIALS ACCORDING TO VSL.....	19
TABLE A.8 – TIGHTNESS CLASS FOR STEM SEALS - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1).....	21
TABLE A.9 – TIGHTNESS CLASS FOR BODY SEALS - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1).....	21
TABLE A.10 – TIGHTNESS CLASS FOR STEM (OR SHAFT) SEALS WITH METHANE - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1).....	21
TABLE A.11 – LEAKAGE FROM BODY SEALS WITH METHANE - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1)	21
TABLE A.12 – ENDURANCE CLASS ACCORDING VSL CLASSIFICATION.....	21
TABLE A.13 – TEMPERATURE CLASS OF FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1)	22
TABLE A.14 – SIL LEVELS	22
TABLE A.15 - STUDS, BOLTS, AND NUTS MATERIAL SPECIFICATION.....	22
TABLE A.16 – ACTUATORS TYPE.....	25
TABLE A.17 – DESIGN STANDARDS FOR BALL VALVES.....	27
TABLE A.18 – MOUNTING TYPE FOR BALL VALVES.....	27
TABLE A.19 – ISOLATION VALVE CONFIGURATION FOR BALL VALVES.....	31
TABLE A.20 – NON-METALLIC MATERIALS FOR SEAT INSERT SEAL DESIGN	31
TABLE A.21 – SEAL GROUPS MATERIALS	32
TABLE A.22 – INDICATION OF GROUPS OF SEALS ACCORDING TO FLUID CLASS AND TEMPERATURE RANGE	33
TABLE A.23 – SEALS GROUP CLASSIFICATION INTO VALVE CODE.....	33
TABLE A.24 – NIPPLE CLASSIFICATION INTO VALVE CODE	34
TABLE A.25 – TYPICAL CONFIGURATIONS FOR BALL METALLIC VALVES UP TO NPS 1 1/2 ("FORGED" VALVES)	34
TABLE A.26 – TYPICAL CONFIGURATIONS FOR METALLIC BALL VALVES NPS 2 AND ABOVE AND DOUBLE BALL VALVE NPS 3 AND ABOVE.....	36
TABLE A.27 – TYPICAL CONFIGURATIONS FOR RISING STEM BALL VALVES	37
TABLE A.28 – TYPICAL CONFIGURATIONS FOR METALLIC DOUBLE BALL VALVES UP TO NPS 2	38
TABLE A.29 – STEM MATERIALS ACCORDING TO MATERIAL CLASS & PRESSURE CLASS OF THE VALVE	39
TABLE A.30 – SPRING MATERIAL	40
TABLE A.31 – SPECIFICATION OF METALLIC COATING (PARTIAL CLAD) FOR BALL VALVES.....	40
TABLE A.32 – SPECIFICATION OF HARD COATING ON SEATS / BALL ON SOFT BALL VALVES	41
TABLE A.33 – SPECIFICATION OF HARD COATING ON SEATS / BALL ON METAL-TO-METAL BALL VALVES.....	41
TABLE A.34 – TYPICAL CONFIGURATIONS FOR SOFT SEATED BALL VALVES ACCORDING TO MATERIAL CLASS	41
TABLE A.35 – TYPICAL CONFIGURATIONS FOR METAL-TO-METAL SEATED BALL VALVES ACCORDING TO MATERIAL CLASS	43
TABLE A.36 – DESIGN STANDARDS FOR GATE VALVES	45
TABLE A.37 – TRIM MATERIAL CONFIGURATION FOR SOLID WEDGE GATE VALVES	46
TABLE A.38 – OBTURATOR TYPE FOR GATE VALVES.....	47
TABLE A.39 – TRIM SELECTION	47
TABLE A.40 – DESIGN STANDARDS FOR CHECK VALVES.....	48
TABLE A.41 – SEAL GROUP MATERIALS FOR SOFT SEATED DUAL PLATE CHECK VALVE.....	49
TABLE A.42 – TRIM MATERIAL ACCORDING TO MATERIAL CLASS.....	49

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B																																														
	MARLIM LESTE E SUL		SHEET: 6 OF 86																																														
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL																																														
<table><tr><td>TABLE A.43 – OBTURATOR TYPE FOR CHECK VALVES</td><td>50</td></tr><tr><td>TABLE A.44 – TRIM SELECTION</td><td>50</td></tr><tr><td>TABLE A.45 – DESIGN STANDARDS FOR GLOBE VALVES</td><td>51</td></tr><tr><td>TABLE A.46 – TRIM DESIGN CODE FOR GLOBE VALVES</td><td>52</td></tr><tr><td>TABLE A.47 – OBTURATOR TYPE FOR GLOBE VALVES.....</td><td>52</td></tr><tr><td>TABLE A.48 – DESIGN STANDARDS FOR BUTTERFLY VALVES</td><td>53</td></tr><tr><td>TABLE A.49 – NON-METALLIC MATERIALS FOR SEATS / STEM SEAL DESIGN</td><td>54</td></tr><tr><td>TABLE A.50 – MATERIAL CLASS CONFIGURATION FOR BUTTERFLY VALVES.....</td><td>55</td></tr><tr><td>TABLE A.51 – DISC & SEAT CONFIGURATION FOR BUTTERFLY VALVES.....</td><td>56</td></tr><tr><td>TABLE A.52 – MATERIAL CONFIGURATION FOR NON-METALLIC VALVES</td><td>56</td></tr><tr><td>TABLE A.53 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC BALL VALVES.....</td><td>56</td></tr><tr><td>TABLE A.54 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC CHECK VALVES</td><td>57</td></tr><tr><td>TABLE A.55 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC BUTTERFLY VALVES</td><td>57</td></tr><tr><td>TABLE A.56 – MINIMUM VALUES FOR TENSION TESTS</td><td>60</td></tr><tr><td>TABLE A.57 - MAXIMUM LEVELS OF SEVERITY BY DEFECT BY THICKNESS</td><td>62</td></tr><tr><td>TABLE A.58 – CHEMICAL COMPOSITION FOR ASTM A522 – TYPE I</td><td>69</td></tr><tr><td>TABLE A.59 – DESIGN VALIDATION REQUIREMENTS ACCORDING VSL CLASSIFICATION</td><td>70</td></tr><tr><td>TABLE A.60 – QSL / PSL REQUIREMENT ACCORDING VSL CLASSIFICATION</td><td>74</td></tr><tr><td>TABLE A.61 – TIGHTNESS CLASS FOR STEM SEALS - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1)</td><td>75</td></tr><tr><td>TABLE A.62 – TIGHTNESS CLASS FOR BODY SEALS - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1)</td><td>75</td></tr><tr><td>TABLE A.63 – IDENTIFICATION OF BODY MATERIAL CODE, ACCORDING TO RESPECTIVE MATERIAL CLASS.....</td><td>82</td></tr><tr><td>TABLE A.64 – IDENTIFICATION OF OBTURATOR TYPE, ACCORDING TO VALVE TYPE.....</td><td>83</td></tr><tr><td>TABLE A.65 – IDENTIFICATION OF TRIM DESIGN, ACCORDING TO VALVE TYPE.....</td><td>83</td></tr></table>				TABLE A.43 – OBTURATOR TYPE FOR CHECK VALVES	50	TABLE A.44 – TRIM SELECTION	50	TABLE A.45 – DESIGN STANDARDS FOR GLOBE VALVES	51	TABLE A.46 – TRIM DESIGN CODE FOR GLOBE VALVES	52	TABLE A.47 – OBTURATOR TYPE FOR GLOBE VALVES.....	52	TABLE A.48 – DESIGN STANDARDS FOR BUTTERFLY VALVES	53	TABLE A.49 – NON-METALLIC MATERIALS FOR SEATS / STEM SEAL DESIGN	54	TABLE A.50 – MATERIAL CLASS CONFIGURATION FOR BUTTERFLY VALVES.....	55	TABLE A.51 – DISC & SEAT CONFIGURATION FOR BUTTERFLY VALVES.....	56	TABLE A.52 – MATERIAL CONFIGURATION FOR NON-METALLIC VALVES	56	TABLE A.53 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC BALL VALVES.....	56	TABLE A.54 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC CHECK VALVES	57	TABLE A.55 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC BUTTERFLY VALVES	57	TABLE A.56 – MINIMUM VALUES FOR TENSION TESTS	60	TABLE A.57 - MAXIMUM LEVELS OF SEVERITY BY DEFECT BY THICKNESS	62	TABLE A.58 – CHEMICAL COMPOSITION FOR ASTM A522 – TYPE I	69	TABLE A.59 – DESIGN VALIDATION REQUIREMENTS ACCORDING VSL CLASSIFICATION	70	TABLE A.60 – QSL / PSL REQUIREMENT ACCORDING VSL CLASSIFICATION	74	TABLE A.61 – TIGHTNESS CLASS FOR STEM SEALS - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1)	75	TABLE A.62 – TIGHTNESS CLASS FOR BODY SEALS - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1)	75	TABLE A.63 – IDENTIFICATION OF BODY MATERIAL CODE, ACCORDING TO RESPECTIVE MATERIAL CLASS.....	82	TABLE A.64 – IDENTIFICATION OF OBTURATOR TYPE, ACCORDING TO VALVE TYPE.....	83	TABLE A.65 – IDENTIFICATION OF TRIM DESIGN, ACCORDING TO VALVE TYPE.....	83
TABLE A.43 – OBTURATOR TYPE FOR CHECK VALVES	50																																																
TABLE A.44 – TRIM SELECTION	50																																																
TABLE A.45 – DESIGN STANDARDS FOR GLOBE VALVES	51																																																
TABLE A.46 – TRIM DESIGN CODE FOR GLOBE VALVES	52																																																
TABLE A.47 – OBTURATOR TYPE FOR GLOBE VALVES.....	52																																																
TABLE A.48 – DESIGN STANDARDS FOR BUTTERFLY VALVES	53																																																
TABLE A.49 – NON-METALLIC MATERIALS FOR SEATS / STEM SEAL DESIGN	54																																																
TABLE A.50 – MATERIAL CLASS CONFIGURATION FOR BUTTERFLY VALVES.....	55																																																
TABLE A.51 – DISC & SEAT CONFIGURATION FOR BUTTERFLY VALVES.....	56																																																
TABLE A.52 – MATERIAL CONFIGURATION FOR NON-METALLIC VALVES	56																																																
TABLE A.53 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC BALL VALVES.....	56																																																
TABLE A.54 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC CHECK VALVES	57																																																
TABLE A.55 – MINIMUM PRESSURE (PSIG) – TEMPERATURE RATING FOR NON-METALLIC BUTTERFLY VALVES	57																																																
TABLE A.56 – MINIMUM VALUES FOR TENSION TESTS	60																																																
TABLE A.57 - MAXIMUM LEVELS OF SEVERITY BY DEFECT BY THICKNESS	62																																																
TABLE A.58 – CHEMICAL COMPOSITION FOR ASTM A522 – TYPE I	69																																																
TABLE A.59 – DESIGN VALIDATION REQUIREMENTS ACCORDING VSL CLASSIFICATION	70																																																
TABLE A.60 – QSL / PSL REQUIREMENT ACCORDING VSL CLASSIFICATION	74																																																
TABLE A.61 – TIGHTNESS CLASS FOR STEM SEALS - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1)	75																																																
TABLE A.62 – TIGHTNESS CLASS FOR BODY SEALS - FUGITIVE EMISSIONS (REF.: ISO 15848 PART 1)	75																																																
TABLE A.63 – IDENTIFICATION OF BODY MATERIAL CODE, ACCORDING TO RESPECTIVE MATERIAL CLASS.....	82																																																
TABLE A.64 – IDENTIFICATION OF OBTURATOR TYPE, ACCORDING TO VALVE TYPE.....	83																																																
TABLE A.65 – IDENTIFICATION OF TRIM DESIGN, ACCORDING TO VALVE TYPE.....	83																																																

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 7 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

A.1. SCOPE

A.1.1. The scope of this document is related to axial, ball, butterfly, check, diaphragm, gate, globe, needle and plug valves, either manually actuated or operated by actuators, for use in Exploration and Production (E&P) business area, onshore and offshore, especially in oil and gas production and their process facilities (topsides and hull).

A.1.2. This document specifies requirements for valves concerning the following topics: design, performance, materials, manufacturing, testing, inspection, marking, handling, storing, shipment and documentation.

A.1.3. This document is not applicable to control valves. DR-ENGP-I-1.5 addresses main requirements for control valves and also establishes supplementary requirements for emergency Shut Down Valves (SDV) and BlowDown Valves (BDV).

A.1.4. The valves considered in this document may be acquired directly by PETROBRAS or through a Contract, as example EPC (Engineering, Procurement and Construction), in both cases to be used for existing facilities or new projects.

A.2. NORMATIVE REFERENCES

Note: The Standards referred herein shall be considered in their latest edition/revision.

API 594, *Check valves: Flanged, Lug, Wafer and Butt-welding*

API 598, *Valve Inspection and Testing*

API 599, *Metal Plug Valves-Flanged, Threaded and Welding Ends*

API 600, *Steel Gate Valves-Flanged and Butt-Welding Ends, Bolted Bonnets*

API 602, *Steel Gate, Globe and Check Valves for Sizes DN 100 and Smaller for the Petroleum and Natural Gas Industries*

API 603, *Corrosion-resistant, Bolted Bonnet Gate Valves—Flanged and Butt-welding Ends*

API 607, *Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats*

API 609, *Butterfly Valves: Double-flanged, Lug – and Wafer-type*

API 6A, *Specification for Wellhead and Christmas Tree Equipment*

API 6D, *Specification for Pipeline and Piping Valves*

ASME B 1.1, *Unified Inch Screw Threads, UN and UNR Thread Form*

ASME B 18.2.1, *Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series)*

ASME B 18.2.2, *Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series)*

ASME B 31.3, *Process piping*

ASME B1.20.1, *Pipe Threads, General Purpose (Inch)*

ASME B16.1, *Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250*

ASME B16.10, *Face-to-face and end-to-end dimensions of valves*

ASME B16.11, *Forged fittings, socket-welding and threaded*

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 8 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
ASME B16.20, <i>Metallic Gaskets for Pipe Flanges: Ring-Joint, Spiral-Wound, and Jacketed</i> ASME B16.25, <i>Buttwelding ends</i> ASME B16.34, <i>Valves – Flanged, threaded and welding end</i> ASME B16.47, <i>Large Diameter Steel Flanges: NPS 26 through NPS 60 Metric/Inch Standard</i> ASME B16.5, <i>Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard</i> ASME B31.4, <i>Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids</i> ASME B31.8, <i>Gas Transmission and Distribution Piping Systems</i> ASME SA-995-04, <i>Specification for Castings, Austenitic-Ferritic (Duplex) Stainless Steel, for Pressure-Containing Parts</i> ASME SEC VIII DIV 1 APPENDIX 7, <i>Examination of Steel Castings</i> ASME SEC VIII DIV 1 SUB A PT UG, <i>General Requirements for All Methods of Construction and All Materials</i> ASME Section II, Part D, <i>Boiler and Pressure Vessel Code (BPVC), Section II: Materials – Part D: Properties (Metric)</i> ASME Section VIII, Division 1, <i>Boiler and Pressure Vessel Code (BPVC), Section VIII, Division 1: Rules for Construction of Pressure Vessels</i> ASME Section VIII, Division 2, 2004 Edition, <i>Boiler and Pressure Vessel Code, Section VIII, Division 2: Alternative Rules</i> ASTM A370-05, <i>Test Methods and Definitions for Mechanical Testing of Steel Products</i> ASTM A488 / A488M-04, <i>Steel Castings, Welding, Qualifications of Procedures and Personnel</i> ASTM A703 /A703M-04A, <i>Steel Castings, General Requirements, for Pressure-Containing Parts</i> ASTM A781 / A781M-05, <i>Castings, Steel and Alloy, Common Requirements, for General Industrial Use</i> ASTM A802 / A802M-95, <i>Steel Castings, Surface Acceptance Standards, Visual Examination</i> ASTM A903 / A903M-99, <i>Steel Castings, Surface Acceptance Standards, Magnetic Particle and Liquid Penetrant Inspection</i> ASTM A995 / A995M-98, <i>Specification for Castings, Austenitic-Ferritic (Duplex) Stainless Steel, for Pressure-Containing Parts</i> ASTM B584, <i>Specification for copper alloy sand castings for general applications</i> ASTM B849, <i>Specification for pre-treatments of iron or steel for reducing risk of hydrogen embrittlement</i> ASTM B850, <i>Standard Guide for post-coating treatments of steel for reducing the risk of hydrogen embrittlement</i> ASTM E1030-00, <i>Radiograph Examination of Metallic Castings</i> ASTM E165-02, <i>Test method for Liquid Penetrant Examination</i> ASTM E186-98, <i>Heavy-Walled (2 to 4 ½-in. [51 to 114-mm]) Steel Castings</i> ASTM E280-98, <i>Heavy-Walled (4 ½ to 12-in. [114 to 305-mm]) Steel Castings</i> ASTM E446-98, <i>Steel castings Up to 2 in. [51 mm] in Thickness</i> ASTM E562-02, <i>Test Method for Determining Volume Fraction by Systematic Manual Point Count</i> ASTM E94-04, <i>Radiograph Examination</i> ASTM G48-03, <i>Standard Test Method for Pitting and Crevice Corrosion Resistance of Stainless Steel and Related Alloys by Use of Ferric Chloride Solution</i>			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 9 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL
BS 1868, <i>Specification for steel check valves (flanged and butt-welding ends) for the petroleum, petrochemical and allied industries</i> BS 1873, <i>Specification for steel globe and globe stop and check valves (flanged and butt-welding ends) for the petroleum, petrochemical and allied industries</i> BS EN 1226 6-1, <i>Industrial valves – Testing of metallic valves Part 1: Pressure tests, test procedures and acceptance criteria – Mandatory requirements</i> BS EN 12266-2, <i>Industrial valves – Testing of metallic valves Part 2: Tests, test procedures and acceptance criteria – Supplementary requirements</i> BS ISO 7121, <i>Steel Ball Valves for general purpose Industrial Applications</i> EN 10204, <i>Metallic products Types of inspection documents</i> DR-ENGP-I-1.15, <i>Color Coding</i> I-ET-3010.00-1200-955-P4X-001, <i>Welding</i> I-ET-3010.00-1200-956-P4X-002, <i>General Painting</i> I-ET-3010.00-1200-955-P4X-002, <i>Requirements for Welding Inspection</i> IOGP S-562, <i>Supplementary Requirements to API Specification 6D Ball Valves</i> IOGP S-611, <i>Supplementary Requirements to API 600 Steel Gate Valves and to API 603 CRA Gate Valves</i> ISO 10434, <i>Bolted bonnet steel gate valves for the petroleum, petrochemical and allied industries</i> ISO 10497, <i>Testing of valves – Fire type-testing requirements</i> ISO 12944-9, <i>Paints and varnishes — Corrosion protection of steel structures by protective paint systems</i> ISO 14313, <i>Petroleum and natural gas industries – Pipeline transportation systems – Pipeline valves</i> ISO 15156 (all parts), <i>Petroleum and natural gas industries - Materials for use in H2S-containing environments in oil and gas production</i> ISO 15761, <i>Steel gate, globe and check valves for sizes DN 100 and smaller, for the petroleum and natural gas industries</i> ISO 15848-1, <i>Industrial valves - Measurement, test and qualification procedures for fugitive emissions – Part 1: Classification system and qualification procedures for type testing of valves</i> ISO 15848-2, <i>Industrial valves - Measurement, test and qualification procedures for fugitive emissions – Part 2: Production acceptance test of valves</i> ISO 17292, <i>Metal ball valves for petroleum, petrochemical and allied industries</i> ISO 5208, <i>Industrial valves – Pressure testing of metallic valves</i> MSS SP-25, <i>Standard Marking System for Valves, Fittings, Flanges and Unions</i> MSS SP-45, <i>Bypass and drain connections</i> MSS SP-55, <i>Quality Standard for Steel Castings for Valves, Flanges, Fittings, and Other Piping Components - Visual Method for Evaluation of Surface Irregularities</i> MSS SP-9, <i>Spot facing for bronze, iron and steel flanges</i> MSS SP-91, <i>Guidelines for manual operation of valves</i>			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 10 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

NBR 15827, *Industrial Valves for Installations of Exploration, Production, Refining and Transport of Petroleum Products - Requirements for Design and Prototype Test*

NORSOK 630 Rev. 3/2004, *Material Datasheet for Piping*

A.3. TERMS AND DEFINITIONS

A.3.1. Bi-Directional Valve: Valve designed for blocking the fluid in both downstream and upstream directions.

A.3.2. Casting Critical Areas: The regions of castings determined by manufacturer engineering, based on valve parts highly stressed by manufacturing process and as determined by finite elements under the maximum process/operating conditions.

A.3.3. Double-Block-And-Bleed Valve – DBB: Single valve with two seating surfaces that, in the closed position, provides a seal against pressure from both ends of the valve with a means of venting/bleeding the cavity between the seating surfaces.

A.3.4. Double-Isolation-and-Bleed valve - DIB: Single valve with two seating surfaces, each of which, in the closed position, provides a seal against pressure from a single source, with a means of venting/bleeding the cavity between the seating surfaces.

A.3.5. DIB-1 valves have both seats bidirectional. Vent or relief of valve cavity shall be obtained by use of an external relief valve.

A.3.6. DIB-2 valves have one seat unidirectional and one seat bidirectional. Further details are listed in A.7.1.4.

A.3.7. Through-Conduit Valve: Valve with an uninterrupted and continuous cylindrical opening. Consequently, there are no cavities or large gaps in the bore between seats and body closures or between seats and obturator.

A.3.8. Full-Bore Valve: Valve with an unobstructed opening, not smaller than the internal bore of the end connections.

A.3.9. Seating Surfaces: Contact surfaces of the obturator and seat which ensure valve sealing.

A.3.10. Pressure Class: Numerical pressure design class, expressed in accordance with either the nominal pressure (PN) class or the ASME rating class.

A.3.11. Pitting Resistance Equivalent Number (PREN): Empiric Mathematical Formula that correlates pitting corrosion resistance with the amounts alloying elements in the steel that contribute to increase this resistance. For duplex steels it shall be calculated as follows:

$PREN = \%Cr + 3,3 \times (\%Mo + 0,5 \times \%W) + 16 \times \%N.$

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 11 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

A.3.12. Pilot Casting: For the customer purpose, any casting that is the first of its model or of a new or modified project, using the same casting procedure (same casting) as the ones it represents.

A.3.13. Casting: Any component of a valve, made by casting.

A.3.14. Nominal Torque of Operation – TNO: It is the actual value of torque needed to operate the valve, under any operation condition. This value shall be presented in the marking (plate) of the valve.

A.3.15. Maximum Torque of Operation – TMO: It is the maximum value of torque that may be applied on the valve, without damaging the override mechanism (i.e.: no plastic deformation on the drive train). This value of torque shall present the safety margin of the actuator, to be applied only under special situation such as a contingency (e.g.: when the valve is not opening / closing with TNO value). Typically, TMO is 150% TNO.

A.3.16. Maximum Allowable Torque – TMA: It is the value of torque that may be applied on the valve, after that it shall start damaging the override mechanism (i.e.: plastic deformation on the drive train).

A.4. SYMBOLS AND ABBREVIATED TERMS

For the purposes of this document, the following symbols and abbreviated terms apply:

ADV	anti-columning deluge valve
CRA	corrosion resistance alloy
DBB	double block and bleed
DIB-1	double isolation and bleed. Both seats bidirectional (DPE)
DIB-2	double isolation and bleed. One seat uni-directional (SPE or SR) and one seat bidirectional (DPE)
DN	nominal size
DPE	double piston effect
EPC	engineering, procurement and construction
FAT	factory acceptance test
HIPPS	high integrity pressure protection system
HP	high pressure
HVOF	high velocity oxygen fuel
ID	internal diameter
ITP	inspection and testing plan
LCF	contractual list of supply
LP	low pressure
LPI	liquid penetrant inspection
LTD	designation for limited class valves per ASME B16.34
MWP	maximum working pressure
NDT	nondestructive testing
NPS	nominal pipe size

 PETROBRAS	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001		REV. B
	MARLIM LESTE E SUL				SHEET: 12 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE				ESUP
					INTERNAL
PFD probability of failure on demand PST partial stroke testing PVT performance verification test QSL quality specification level RGD rapid gas decompression SDV shut down valve SIF safety instrumented function SIL safety integrity level SIP shut in pressure SPE single piston effect SR self-relief TMA maximum allowable torque TMO maximum torque of operation TNO nominal torque of operation UNS unified numbering system VAC axial control valve VAG needle valve VAX axial valve VBO butterfly valve VCI volatile corrosion inhibitor VDE double ball valve VDI diaphragm valve VDS valve datasheet VES ball valve VGA gate valve VGL globe valve VMA plug valve VRE check valve VSL valve specification level WPS welding procedure specifications WPQR welding performance qualification record					

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 13 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

A.5. VALVE SELECTION GUIDE

A.5.1. INTRODUCTION

A.5.1.1. In this item is presented general information, such as a guide of how shall be conducted the engineering process to select a valve for use in the Project and/or specific application.

A.5.1.2. The indication of all valves shall be driven by the definition of Valve Specification Level (VSL), which regulates the specification of an adequate valve for a certain application, taking into account the criticality foreseen in the application/use of the valve.

A.5.1.3. The VSL classification will provide specific requirements for four valve specification levels (VSLs): VSL-1, VSL- 2, VSL-3, VSL-4. These four VSL designations define different levels of technical / quality requirements.

A.5.1.4. The determination of the VSL is obtained by the classification rules stated on item A.5.2.

A.5.1.5. All VDS presented herein are formulated according its specific VSL indication. Design premises, such as materials (metallic / non-metallic), configurations, tests and design validation are based on the criticality foreseen in the application/use of the valve and defined by the specific VSL.

A.5.1.6. For any given VSL, there is a set of requirements associated with it (item A.5.3).

A.5.1.7. The manufacturer of the valve shall attend all requirements listed in the VDS, including the specific requirements of VSL.

A.5.1.8. It is possible to have more than one type of valve (e.g.: ball, gate, etc.) with the same VSL number, and possibly both types would be able to attend a certain application. In this case, it shall be conducted by the Project and/or user an evaluation of the valve features associated with the foreseen application, and so define the type of valve that shall be specified in the Project and/or specific application.

A.5.1.9. The valve’s features are presented in item A.5.4, and allows an adequate understanding about which type of valve is more suitable for the intended application.

A.5.2. VALVE SPECIFICATION LEVEL (VSL) - CLASSIFICATION

A.5.2.1. The VSL classification shall be taken according to premises indicated in this item. It shall be evaluated the following parameters by the Project and/or user:

a)

Accumulated energy: it shall be verified the classification of accumulated energy associated with the use of the valve, as described in Table A.1.

b)

Demand: the expected number of cycles during the lifetime of the valve shall be taken into account when considering the VSL. The higher the number, the higher the VSL, as described in Table A.1.

Table A.1 – Classification of accumulated energy and high demand valves

Accumulated Energy	High	Valves of Pressure Class 600 and 900, NPS ≥ 6 Valves of Pressure Class 1500, 2500 and 10.000psi
	Low	Valves of Pressure Class 125, 150 and 300 Valves of Pressure Class 600 and 900, NPS ≤ 4
High Demand	Actuated Filter valves, Actuated XVs, Actuated molecular sieve valve. In general, actuated valves that operate more than once a month.	

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 14 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Table A.2 – Valve Specification Level (VSL) classification

Application		Level		
Safety Valves	HIPPS, SDV Platform limits	VSL-4		
	SDV, BDV, L/R PIG (Note 1)	VSL-3		
	ADV, ADV Block	VSL-2		
Other valves	Service (Note 2)	Accumulated Energy	High Demand	
			Yes	No
	Hydrocarbon Hot water Flammable Steam Toxic	High	VSL-3	VSL-2
		Low		
	Other services	High	VSL-2	VSL-2
		Low		VSL-1
	Note 1 – This table is not applicable for valves in tubing specifications.			
	Note 2 – See below the fluids belonging to each service:			
	- Hydrocarbon / Flammable / Toxic: AM, CI, CI2, CN, CNI, D, DF, DFC, DOH, F, FG, G, GL, H, HBG, IGN, JF, OL, P, PC, PCG, PLD, TR;			
	- Hot water: HWP;			
- Steam: S;				
- Other services: ADW, AO, BG, BR, BWG, BWH, CHW, CV, DA, DO, DTH, DW, EG, FL, FLC, FP, FW, GW, HF, HBG, HWU, IA, IG, IN, IW, IWC, PCW, PW, PWH, SA, SC, SFW, SN, SP, STA, SW, TC, TL, W, WW.				

A.5.3. VALVE SPECIFICATION LEVEL (VSL) - REQUIREMENTS

A.5.3.1. Each VSL classification inputs to the valve design a basic information about which API 6D - Quality Specification Level (QSL) shall be fulfilled, plus a sort of specific requirements (mandatory).

A.5.3.2. The QSL classification and requirements are according to API 6D: QSL-1, QSL-2, QSL-3 or QSL-4. All requirements listed in API 6D Annex I shall be attended according the respective QSL related to the VSL.

A.5.3.3. The QSL refers to specific requirements for NDT, pressure testing and documentation of the valve.

A.5.3.4. The VSL requirements shall be as described in Table A.3:

Table A.3 – Valve Specification Level (VSL) requirements

VSL Requirements	VSL-1	VSL-2 (not for hydrocarbon)	VSL-2 (with hydrocarbon)	VSL-3	VSL-4
QSL (According API 6D)	QSL-2	QSL-2	QSL-3	QSL-3	QSL-4
PSL (According API 6A)	NA	PSL-3 or PSL-3G as applicable	PSL-3 or PSL-3G as applicable	PSL-4	PSL-4
Fugitive Emissions Design	No	No (Note 2)	Yes / No (Note 1)	Yes / No (Note 1)	Yes / No (Note 1)

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001		REV. B
	MARLIM LESTE E SUL				SHEET: 15 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE				ESUP
					INTERNAL

(According item A.6.1.6)					
Fire Resistant (According item A.6.1.3.3)	No (Note 2)	Yes / No (Note 3)	Yes / No (Note 3)	Yes / No (Note 4)	Yes
Design Validation (According item A.9.2)	No	Design analytical approval		Design validation test approval (PVT)	
SIL Capable (According item A.6.1.7)	No	No	No	No	Yes / No (Note 5)

Note 1 – The valve design shall be fugitive emissions approved if the valve will be specified for use in a process pipe that fluid contains volatile organic compounds (e.g.: benzene), and its emissions to environment are limited by a reglementary law.

Note 2 – If fire resistant requirement is requested by the Project, it shall be considered the use of a VSL-2 valve.

Note 3 – Indication of fire-resistant valve shall be taken according design premises.

Note 4 – SDV, BDV, ADV valves and valves certified for fugitive emissions shall be fire tested. For other valves, indication of fire-tested valve shall be taken according to design premises.

Note 5 – SIL capable applies only for HIPPS valve.

A.5.4. VALVE FEATURES AND TYPICAL APLICATIONS

A.5.4.1. For each type of valve, Table A.4 presents a summary of valve features and typical applications.

Table A.4 – Valve features and typical applications

Features	Ball			Gate			Check			Globe	Butterfly			Axial	Plug	Needle	Diaphragm
	Soft	Metal to Metal	Rising Stem (Metal to Metal)	Solid Wedge	Expanding	Slab	Piston	Dual Plate	Swing	Axial (Non-slam)	Chamber Disc	Category A (concentric)	Category B (th-offset)	Category B (th-offset)			
Manual operator design (eg.: wrench, handwheel gearbox)	A	A	A	A	A	A	N/A	N/A	N/A	N/A	A	A	A	A	A	A	N/A
Actuated design (eg.: hydraulic, electric, pneumatic)	A	A	A	A	A	A	N/A	N/A	N/A	N/A	A	A	A	A	A	N/A	A
Soft seated design	Yes	No	N/A	No	A	No	No	A	No	A	No	Yes	Yes	No	Yes	No	Yes
Metal to Metal seat design	No	Yes	Yes	Yes	A	Yes	Yes	A	Yes	A	Yes	No	Yes	No	Yes	Yes	No
Piggable	Yes	Yes	No	No	Yes	Yes	No	No	N/A	No	No	No	No	No	No	No	No
Bidirectional	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No
Double block and bleed (i.e.: DBB)	A	A	No	No	A	No	No	No	No	No	No	No	No	No	A	No	No
Double isolation and bleed (i.e.: DIB-1, DIB-2)	A	A	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Fire tested design	A	A	Yes	N/A	A	N/A	N/A	N/A	N/A	N/A	N/A	No	A	A	A	N/A	No
Fire safe design	N/A	N/A	N/A	A	N/A	A	A	A	A	A	A	No	N/A	N/A	N/A	A	No
Fugitive emissions design	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit to control application	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	P	N/A	N/A	N/A	Yes	N/A	N/A
Fit to abrasive service (solids in suspension)	N/A	P	ALT	N/A	N/A	ALT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ALT	ALT	N/A	N/A
Fit to Safety Instrumented System (SIS) (e.g.: HIPS application)	N/R	P	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	ALT	N/R	N/R	N/R
SIL capable design	N/A	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A	N/A	N/A	N/A
Fit to SDV Platform Limits	N/R	P	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Fit to SDV, BDV application (hydrocarbon service)	N/R	A	N/R	N/R	N/R	A	N/R	N/R	N/R	N/R	N/R	N/R	N/R	A	N/R	N/R	N/R
Fit to SDV, BDV application (Non-hydrocarbon service)	A	A	N/R	N/R	N/R	A	N/R	N/R	N/R	N/R	N/R	N/R	N/R	A	N/R	N/R	N/R
Fit to LIR PIG application	N/R	A	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Fit to molecular sieve application	N/R	N/R	P	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	ALT	N/R	N/R	N/R
Fit to ADV application	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	A	N/R	N/R	N/R	A

Legend: A – Available; ALT – Alternative solution; P – Preferential solution; N/R – Not Recommended; N/A - Not Available

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 17 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

A.6. GENERAL DESIGN REQUIREMENTS

A.6.1. VALVE

A.6.1.1. GENERAL

A.6.1.1.1. Regarding documentation hierarchy, valve design shall be according to the Standard referenced in the VDS. In case of conflict between the requirements herein established and that Standard, the attendance of this document shall be considered as mandatory.

A.6.1.1.2. The valve design shall attend all quality, functional, materials, testing, and configuration requirements specified in the VDS.

A.6.1.1.3. The assembly of the valve / actuator shall meet all operating conditions, in any position of installation, without performance reduction. Unless clearly specified, it shall be able to operate under full rated condition, such as opening and closing at full differential pressure, according to the design pressure indicated in the VDS.

A.6.1.1.4. Valve lifting shall, at a minimum, comply with API 6D and IOGP S-562 §5.19 requirements for lifting . In case of conflict the most restrictive requirement shall be used. The manufacturer shall present all dimensional drawings of the valve and actuator, with a list of all parts and materials specifications.

A.6.1.1.5. The manufacturer shall present a list of required torques on the valve shaft, containing the following values of torque: Nominal Torque of Operation (TNO), Maximum Torque of Operation (TMO) and Maximum Allowable Torque (TMA), taking into account the pressure class of the valve and temperature limits.

Note: for gate and globe valves with manual actuation, TNO shall be according MSS SP-91; for ball valves, the TNO shall comply with API 6D; and for butterfly valves, the TNO shall be according to API 609.

A.6.1.1.6. The manufacturer shall inform in the documentation all design and/or operation constraints (e.g.: installation position, flow direction, flow rate, limits of pressure, temperature and metallic / non-metallic materials, etc.).

A.6.1.1.7. Valve ID (bore) shall be compatible with the ID of the pipes and accessories in which the valve is installed.

A.6.1.1.8. All metallic materials shall have a mill certification, with registers of chemical composition, mechanical properties and other standards requirements, besides the manufacturer batch identification.

A.6.1.1.9. For valve designs which allows retained pressure in body cavity (when valve is fully closed or fully open), plugs capable to mitigate risk of an accident under an eventual remotion shall be used. In this case, those ports shall be closed with plugs having a constructive configuration that allows pressure relieving to atmosphere (relief hole) during the beginning of plug remotion, serving as an alert to the operator about

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 18 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

the remaining pressure inside the valve body. An example of this kind of configuration is showed as follows:

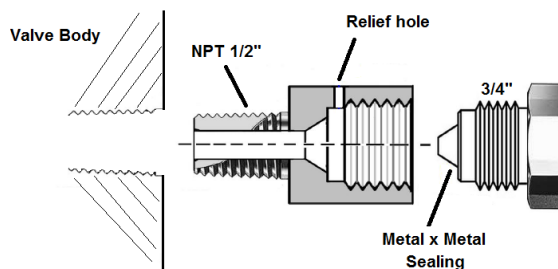


Figure A.1 – Example of use of drain and vent plug

A.6.1.1.10. For chlorinated seawater service, the maximum operating temperature for NAB valves shall be 75 °C according to ISO21457.

A.6.1.2. MATERIAL CLASSES

A.6.1.2.1. The design of the valves shall attend one of the following classifications of material classes:

Table A.5 – Material classes

#	Material Class
C	Carbon Steel
A	Alloy Steel
S	Stainless Steel
D	Duplex Steel
N	Nickel Alloy
U	Uncommon materials

A.6.1.3. BODY MATERIAL

A.6.1.3.1. The referred letter of the material class of the valve, shown on the first column of Table A.5, associated with the number indicated in the lines of Table A.6, gives the body material considered in the valve design. The combination of the letter and number shall be considered as a part of the valve code, according to description of valve code presented on item A.11.5.

Table A.6 – Body material, according to material class

Body Material	Material Class					
	C	A	S	D	N	U
	Carbon steel	Alloy steel	Stainless steel	Duplex steel	Nickel alloys	Uncommon materials
1	ASTM A105 or ASTM A216 WCB	ASTM A350 LF3 or ASTM 352 LC3	-	ASTM A995 Gr. 1B	Alloy 625 (UNS N06625)	Bronze
2	A350 LF2 CL1 or ASTM A352 LCC	ASTM A182 F5	ASTM A182 Gr. F316 or ASTM A351 Gr. CF8M	ASTM A182 Gr. F51 or ASTM A995 Gr. 4A	-	Ductile iron ASTM A536-65-45-12
3	ASTM A105 or ASTM A216 WCB	ASTM A182 F11 CL2	ASTM A182 Gr. F317 or	ASTM A182 Gr. F55 or	-	ASTM B148 (UNS C95800)

 PETROBRAS	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 19 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

Body Material	Material Class					
	C	A	S	D	N	U
	Carbon steel	Alloy steel	Stainless steel	Duplex steel	Nickel alloys	Uncommon materials
	+ Organic Coating (Onshore use only)		ASTM A351 Gr. CG8M	ASTM A995 Gr 6A		
4	ASTM A105 or ASTM A216 WCB + Organic Coating (Offshore)	ASTM A522 Type I	ASTM A182 Gr. F347 or ASTM A351 Gr. CF8C	-	-	Plastics
5	ASTM A105 or ASTM A216 WCB + Full Clad Alloy 625 overlay (UNS N06625)	ASTM A350 LF3 or ASTM A352 LC3 + Full Clad Alloy 625 overlay (UNS N06625)	-	-	-	Gray Iron
6	ASTM A350 LF2 CL1 or ASTM A352 LCC + Full Clad Alloy 625 overlay (UNS N06625)	ASTM A522 Type I + Full Clad Alloy 625 overlay (UNS N06625)	-	-	-	Ductile iron + PFA liner ASTM A395 60-40- 18
7	ASTM A694 F65 ^a	-	-	-	-	-
8	ASTM A216 WCB + PTFE / PFA					

^a See A.6.1.3.3.

A.6.1.3.2. The use of forgings or castings for the body material shall follow the following classification according the VSL of the valve, and indicated in the VDS:

Table A.7 – Process fabrication for body materials according to VSL

VSL	Pressure Class						
	150	300	600	900	1500	2500	10000
VSL-1	Forging or Casting				Forging (Note 1)		
VSL-2							
VSL-3	Forging (Note 1)						
VSL-4							
Note 1 - Except for axial valves (VAX, VAC) and Triple Offset Butterfly valves made of NIAIBr (UNS C95800), for which casting is acceptable.							

A.6.1.3.3. ASTM A694 forgings shall comply with MDS IX-124 of IOGP S-563 and following modifications:

A.6.1.3.3.1. Acceptance criteria for impact testing on full-size specimens shall be 40 J (average of three specimens) and 34 J minimum;

A.6.1.3.3.2. Mechanical test specimens shall be taken from mid-thickness and mid-length of the test forging;

A.6.1.3.3.3. Test forging shall be at least the same thickness of production forging;

A.6.1.3.3.4. For clad valves ultrasonic testing shall be applied after cladding to all forgings. The testing shall be carried out using both compression and shear wave (normal and angle beam) techniques as

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 20 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
per ASTM A388 and dedicated procedure with scanning plan. Supplementary requirements S1 shall apply. Acceptance criteria shall be as follows: A.6.1.3.3.5. No single indication equal to or exceeding reference distance amplitude curve is allowed. A.6.1.3.3.6. All indication with an echo greater than 25% of the reference will be deemed relevant and shall be investigated. A.6.1.3.3.7. No multiple indications exceeding 50% of reference distance amplitude curve is allowed. Multiple indications are defined as two or more indications (each exceeding 50% of the reference distance amplitude curve) within 13 mm of each other in any direction. A.6.1.4. FIRE TESTED VALVES A.6.1.4.1. In order to obtain indication that the valve design shall be fire tested type, it shall be fulfilled all requirements listed in DR-ENGP-M-I-1.3, such as the execution of the “Risk Assessment and Safety Studies” (item 8 of DR-ENGP-M-I-1.3) and the “Consequence Analysis - (fire propagation, gas dispersion, explosion, etc.)”. A.6.1.4.2. Whenever specified in the VDS that the valve shall be fire tested, its design shall be submitted to a certification by testing a prototype according to ISO 10497, API 6FA or API 607 (except 4th edition). A.6.1.4.3. The manufacturer shall present to PETROBRAS the correspondent certificate and the valve shall be marked as described on item A.6.1.10. A.6.1.4.4. The design of the seals on seats/body and stem areas shall consider mandatory the use of a metallic element or an element made by graphite, to guarantee the attendance of the fire testing requirement. This element shall be installed on each leakage path of the valve. A.6.1.5. FIRE SAFE VALVES A.6.1.5.1. To obtain indication that a valve design shall be fire safe type, it shall be fulfilled all requirements listed in DR-ENGP-I-1.3, such as the execution of the “Risk Assessment and Safety Studies” (item 5 of DR-ENGP-I-1.3) and the “Consequence Analysis - (fire propagation, gas dispersion, explosion, etc.)”. A.6.1.5.2. Whenever specified in the VDS that the valve shall be fire safe, its design shall contain material specification applying materials that are capable of withstanding exposure to fire without failure. A.6.1.5.3. The fire safe design does not require valve certification, but it shall guarantee that the valve design is resistant to a fire scenario. A.6.1.5.4. The design of the seals on seats/body and stem areas shall consider mandatory the use only of a metallic element or an element made by graphite, to guarantee the attendance of the fire safe requirement. A.6.1.6. FUGITIVE EMISSIONS A.6.1.6.1. To prevent a valve failure (e.g.: leaking toxic fluid to external environment), that could contribute to the minimize safety to personnel, installation, and/or environment; some valves shall be designed to be fugitive emissions approved. This is applicable to all valves with one of the following services: DO, DOH, FG,			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 21 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

GL, P or PC.

A.6.1.6.2. Whenever specified in the VDS that the valve shall be fugitive emission approved, its design shall be certified according to ISO 15848 Part 1, by prototype approval to confirm that an adequate design of seals (on body joints and stem) is provided.

A.6.1.6.3. The manufacturer shall prepare specific Performance Verification Test (PVT) procedure, according to ISO 15848 Part 1, and submit for PETROBRAS approval.

A.6.1.6.4. The manufacturer shall provide the certificate of approval containing information about the design "Performance Class" according to ISO 15848 Part 1. Information about "Tightness Class", "Endurance Class", and "Temperature Class" shall be presented in detail.

A.6.1.6.5. The "Tightness Class" shall be according BH.

Table A.8 – Tightness class for stem seals - fugitive emissions (ref.: ISO 15848 Part 1)

Class	Measured leak rate (mass flow)	Measured leak rate (mass flow)	Measured leak rate (volumetric flow)	Remarks
	mg.s ⁻¹ .m ⁻¹ stem perimeter (for information)	mg.s ⁻¹ .m ⁻¹ stem diameter through stem seal system	mbar.ls ⁻¹ per mm stem diameter through stem seal system	
AH ¹	≤ 10 ⁻⁵	≤ 3,14.10 ⁻⁸	≤ 1,78.10 ⁻⁷	Typically achieved with bellow seals or equivalent stem (shaft) sealing system for quarter turn valves
BH ²	≤ 10 ⁻⁴	≤ 3,14.10 ⁻⁷	≤ 1,78.10 ⁻⁶	Typically achieved with PTFE based packings or elastomeric seals
CH ²	≤ 10 ⁻²	≤ 3,14.10 ⁻⁵	≤ 1,78.10 ⁻⁴	Typically achieved with flexible graphite based packings
¹ Expressed by the vacuum method as defined in ISO 15848 Part 1 - Annex A.				
² Measured by the total leak rate measurement method (vacuum or bagging) as defined in ISO 15848 Part 1 - Annex A.				

Table A.9 – Tightness class for body seals - fugitive emissions (ref.: ISO 15848 Part 1)

Measured leakage (Body seals)	≤ 50 ¹
¹ Expressed in ppmv measured with the sniffing method as defined in ISO 15848 Part 1 - Annex B	

Table A.10 – Tightness class for stem (or shaft) seals with methane - fugitive emissions (ref.: ISO 15848 Part 1)

Class	Measured leakage ppmv (sniffing method according to ISO 15848 Part 1 - Annex B)
AM	≤ 50
BM	≤ 100
CM	≤ 500
¹ Expressed in ppmv measured with the sniffing method as defined in ISO 15848 Part 1 - Annex B	

Table A.11 – Leakage from body seals with methane - fugitive emissions (ref.: ISO 15848 Part 1)

Measured leakage ppmv (sniffing method according to ISO 15848 Part 1 - Annex B)
≤ 50

A.6.1.6.6. The mechanical cycles shall be performed according to ISO 15848 Part 1, considering the following "Endurance Class" x VSL:

Table A.12 – Endurance class according VSL classification

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001				REV. B
	MARLIM LESTE E SUL					SHEET: 22 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE					ESUP INTERNAL

Endurance Class (as defined in ISO 15848 Part 1 - Annex B)	VSL-1	VSL-2	VSL-3	VSL-4
	CC1 / CO1			

A.6.1.6.7. The “Temperature Class” shall be tRT. Nevertheless, seal materials shall be suitable for the entire temperature range informed in the valve data sheet.

Table A.13 – Temperature class of fugitive emissions (ref.: ISO 15848 Part 1)

(t-196 °C)	(t-46 °C)'	(tRT)	(t200 °C)	(t400 °C)
-196 °C	-46 °C	Room temperature, °C	200 °C	400 °C

A.6.1.7. SAFETY INTEGRITY LEVEL

A.6.1.7.1. The concept of Safety Integrity Level (SIL) shall be applied for valves dedicates to a HIPPS system.

A.6.1.7.2. The SIL is a representation of the required safety unavailability (average probability of failure on demand - PFD) of a safety instrumented function (SIF).

A.6.1.7.3. The SIL classification shall be as listed in Table A.14, where SIL 4 has the highest level of safety integrity, and SIL 1 has the lowest.

Table A.14 – SIL levels

SIL	PFD	Availability	Risk Reduction Factor
SIL 1	0,1 to 0,01	0,90 to 0,99	10 to 100
SIL 2	0,01 to 0,001	0,99 to 0,999	100 to 1000
SIL 3	0,001 to 0,0001	0,999 to 0,9999	1000 to 10.000
SIL 4	0,0001 to 0,00001	0,9999 to 0,99999	10.000 to 100.000

A.6.1.7.4. Whenever requested in the VDS, such as for HIPPS valve, the SIL to be considered in the design of the valve shall be SIL-3. The manufacturer shall present all documentation in order to certify that SIL 3 requirements were achieved for the valve design.

A.6.1.8. BOLTING

A.6.1.8.1. The Studs, bolts and nuts used in the body-closure and body-bonnet shall be according:

Table A.15 - studs, bolts, and nuts material specification

Body Material	Studs / Bolts Material	Nuts	Coating
ASTM A105 ASTM A216 Gr. WCB	ASTM A193 Gr. B7	ASTM A194 Gr. 2H	According to item A.6.1.8.2
ASTM A350 Gr. LF2 CL1 ASTM A352 Gr. LCC ASTM A350 Gr. LF3 CL1 ASTM A352 Gr. LC3	ASTM A320 Gr. L7	ASTM A194 Gr. 4L or 7L	
	ASTM A193 Gr. B8M or ASTM A193 Gr. B8M CL2	ASTM A194 Gr. 8M	N/A

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 23 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Body Material	Studs / Bolts Material	Nuts	Coating
ASTM A182 Gr. F11 CL2 ASTM A217 Gr. WC6 ASTM A182 Gr. F5 ASTM A217 Gr. C5	ASTM A193 Gr. B16	ASTM A194 Gr. 7	According to item A.6.1.8.2
ASTM A182 Gr. F316 ASTM A351 Gr. CF8M ASTM A182 Gr. F317 ASTM A351 Gr. CG8M ASTM A182 Gr. F347 ASTM A351 Gr. CF8C	ASTM A193 Gr. B8M or ASTM A193 Gr. B8M CL2	ASTM A194 Gr. 8M	N/A

A.6.1.8.2. Zn-Ni coating shall be applied to studs, bolts and nuts in lines with temperature up to 260°C. The studs, bolts and nuts shall be coated with zinc-nickel (Zn-Ni) according to ASTM B841, Class 1, Type B / E, Grade 5-8, with post-coating hydrogen embrittlement relief, according to ASTM B 849 and ASTM B 850; the maximum hardness for studs and bolts shall be according to standard material specification.

A.6.1.8.3. For studs and bolts according to ASTM A320 Gr L7, and the valve body material is ASTM A350 Gr LF2 CL 1 or ASTM A352 Gr LCC, it will be acceptable charpy impact testing at -45°C. If the valve body material is ASTM A350 Gr LF3 or ASTM A352 Gr LC3, it will be acceptable charpy impact testing at -60°C.

A.6.1.8.4. The studs used in the body-closure (ball, check and plug) and body-bonnet (gate and globe) shall be according to ASME B1.1, UNC-2A up to 25,40mm (1") and 8UN-2A, from 28,57mm (1 1/8") up, with standard hex nuts according to ASME B18.2.2, with a minimum of four. The length of the studs shall have minimum of one and maximum of three screw threads beyond the nut. For valves with DN 40 (1 1/2") and smaller, is allowed the use of bolts according to ASME B18.2.1. Alternatively, studs, bolts and nuts may be according to metric units.

A.6.1.8.5. Valves subjected to fire type-testing shall be assembled with studs, bolts, and nuts according Table A.15. For the cases not covered in Table A.15, the manufacturer shall properly specify bolting materials. In this case, this set shall be used for fire type-testing. As an alternative of ASTM A193 Gr B7, studs made of ASTM A193 Gr B16 may be used, considering coating requirements indicated in item A.6.1.8.2.

A.6.1.8.6. Studs, bolts and nuts made of austenitic stainless steel (e.g.: Type 316) shall not be used when exposed to wet marine atmosphere with maximum operating temperature above 60°C if. As an alternative, ASTM A193 Gr. B7 may be used.

A.6.1.9. PAINTING

A.6.1.9.1. If painting of the valve is contractual required, the manufacturer shall present for PETROBRAS approval the Painting Inspection Plan, according PETROBRAS's specification and approved by a Painting

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL	SHEET: 24 OF 86	
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	

Inspector Level II;

A.6.1.9.2. It shall be documented all painting inspection registers, and submitted for PETROBRAS;

A.6.1.9.3. The color to be applied on the valves shall according to DR-ENGP-M-I-1.15.

A.6.1.9.4. Coating systems specified for offshore and coastal applications shall be selected in accordance with ISO 12944-9 corrosion category CX high durability and I-ET 3010.00-1200-956-P4X-002.

A.6.1.10.MARKING AND NAMEPLATE

A.6.1.10.1.All valves shall be marked in accordance with the requirements stated on the design Standard referenced in the VDS.

A.6.1.10.2. Each valve shall be provided with an austenitic stainless-steel nameplate securely affixed and so located that it is easily accessible. Rivet holes shall be drilled prior to hydrostatic shell test.

A.6.1.10.3.The nameplate shall present information in accordance with the requirements stated on the design Standard referenced in the respectively VDS, plus the additional data:

A.6.1.10.3.1. Indication about the VSL of the valve, such as: VSL-1, VSL-2, VSL3 or VSL-4.

A.6.1.10.3.2. Indication about fire tested design (when applicable).

A.6.1.10.3.3. Indication about fugitive emissions design (when applicable).

A.6.1.10.4.For trunnion mounted ball valves, despite of the separate identification plate requested by API 6D to indicate the direction of seats valves with one unidirectional seat and one bidirectional seat, each valve shall present a separate identification plate indicating the seat configuration, such as illustrated in Figure A.2.

A.6.1.10.5.Valves designed with unidirectional flow capability, i.e., flow occurs only in one direction, shall be marked with a flow direction arrow or with a separate identification plate fixed to the body, indicating the direction for which flow is permitted.



For SPE / DPE seats



For SPE / SPE seats

Figure A.2 – Example of nameplates with indication of seat configuration.

A.6.2. ACTUATOR

A.6.2.1. GENERAL

A.6.2.1.1. In general, all VDS contain technical specification considering manual actuated valves. The

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 25 OF 86
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL

actuation for manual valves may be as a wrench, hand wheel or gearbox operator.

A.6.2.1.2. Other types of actuators, such as hydraulic, pneumatic or electric, may be considered by PETROBRAS to be used. In this case, the manufacturer shall design the valve and actuator also considering the specific datasheet.

A.6.2.1.3. When applicable (i.e.: control valve, SDV and BDV), the design of actuators shall consider the requirements stated in DR-ENGP-M-I-1.5.

A.6.2.1.4. When applicable, the actuator shall be equipped with a positioning indicator, to show correct and clearly the position of the valve (open or close). The position of a wrench or indicator shall be in the direction of the line/bore when the valve is open and be perpendicular to the line/bore when the valve is closed.

A.6.2.1.5. For gearbox operator, the connection between the valve body and the gearbox shall be vented so that any leakage from the stem cannot penetrate into the gearbox housing.

A.6.2.1.6. In case hydraulic actuator is considered, the manufacturer shall design it to have a maximum operating pressure (e.g.: opening under full differential pressure) of 90% of the nominal operating pressure.

A.6.2.1.7. The actuator shall be designed with a safety factor of 2 times the nominal torque during normal operation condition (maximum available torque = 2 x nominal torque).

A.6.2.1.8. For hand wheel actuated valves, the hand wheel shall be designed to allow operation of the valve under full differential pressure. It shall also attend the requirements listed in MSS SP-91.

A.6.2.1.9. Levers and handwheels shall be in grade 316 stainless steel material.

A.6.2.2. ACTUATOR TYPE

A.6.2.2.1. Unless otherwise specified, the actuator type shall be according:

Table A.16 – Actuators type

Type	Pressure Class	Use of Gearbox x DN(NPS) ≥
Gate	150	300 (12)
	300	250 (10)
	600	150 (6)
	900	100 (4)
	1500, 2500	80 (3)
Globe	150, 300	200 (8)
	600, 900	100 (4)
	1500, 2500	80 (3)
Ball	150, 300	150 (6)
	600, 900	100 (4)
	1500, 2500	50 (2)
Butterfly Category A (concentric)	CWP and 150	250 (10)
Butterfly Category B (bi-eccentric / triple-eccentric)	150 and 300	200 (8)
	600	160 (6)
Plug	150, 300	150 (6)
	600, 900	100 (4)

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 26 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

A.7. SPECIFIC DESIGN REQUIREMENTS

A.7.1. BALL VALVE

A.7.1.1. DESIGN REQUIREMENTS

A.7.1.1.1. The valve shall be designed to operate and seal, according to design premises, under the following conditions:

a)

high pressure, equivalent to MWP, being able to operate and seal with high and low differential pressure.

b)

low pressure, equivalent to LP of specific QSL requirement, being able to operate and seal with a low differential pressure.

A.7.1.1.2. The type of the seats, regarding SPE or DPE, shall be used in the assembly of the valve in order to guarantee the isolation valve configuration specified in the VDS (i.e.: DBB, DIB-1 or DIB-2). Any deviation shall be submitted for PETROBRAS approval.

A.7.1.1.3. All sealings specified for the body construction shall be bi-directional, and no visible leakage shall be considered to external environment.

A.7.1.1.4. The sealing type of the valve, regarding metal-to-metal or soft sealing, shall be according to the indication in the VDS. Any deviation shall be submitted for PETROBRAS approval.

A.7.1.1.5. A metal-to-metal seated ball valve consists exclusively in use of a metal-to-metal sealing between seats and ball, without the use of a non-metallic insert.

A.7.1.1.6. A soft seated ball valve consists in use of a non-metallic insert to guarantee its sealing performance. In this case, the seat insert design and its groove shall be designed in order to prevent extrusion under all operation conditions.

A.7.1.1.7. Whenever specified in the VDS, the manufacturer shall attend to the metallic coating specified for the sealing surfaces, such as in the body, bonnet, ball, seats, etc. In this case, the manufacturer shall attend the applicable requirements listed on items A.7.1.7.5 and A.8.

A.7.1.1.8. Whenever specified in the VDS, the manufacturer shall attend to the hard coating specified for the sealing surfaces, such as in the ball and seats. In this case, the manufacturer shall attend the applicable requirements listed on items A.7.1.7.6 and A.8.2.2.

A.7.1.1.9. Whenever specified in the VDS, the manufacturer shall attend to the organic coating specified. In this case, the manufacturer shall attend the applicable requirements listed on item A.8.2.2.4.

A.7.1.1.10. Cancelled.

A.7.1.1.11. For trunnion ball valves type DIB-1, or when requested in the VDS, it shall be provided with an automatic cavity-pressure relief. In this case, it shall be considered the use of a block valve before the cavity-relief valve.

A.7.1.1.12. Cancelled.

A.7.1.1.13. The ball shall be full bore type, cylindrical and solid as shown in Figure A.3. Reduced bore may be

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 27 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

used only if approved by Petrobras.

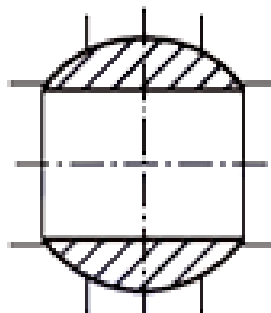


Figure A.3 – Ball type.

A.7.1.2. DESIGN STANDARD

A.7.1.2.1. The following standards shall apply to the design of ball valves:

Table A.17 – Design Standards for ball valves

Description	Body / Closure Material							
	Casting or Forging				Forging			
	Flanged ^b				Socket weld ^c		Butt weld ^c	Flanged
DN ^a (NPS)	50 up to 900 (2 up to 36)	50 up to 600 (2 up to 24)	50 up to 400 (2 up to 16)	50 up to 300 (2 up to 12)	15 up to 40 (1/2 up to 1 1/2)			
Class	150, 300 600	900	1500	2500	800	1500	2500	150, 300, 600 900, 1500, 2500
Standard	API 6D / IOGP S-562 ^d				ISO 17292	AS ME B 16.34 LTD		API 6D

^aDN = Nominal diameter, in millimeters (mm).

^bFor DN > standard diameter, face to face shall be by agreement between manufacturer and PETROBRAS. The design shall be according to ASME B16.34.

^cThe design of the valve shall consider the use of a nipple with extension of 100,00 millimeters.

^d As applicable. See also A.7.1.8.

A.7.1.3. MOUTING TYPE

A.7.1.3.1. The design of metallic ball valves (metal-to-metal or soft seated) shall attend the following characteristic regarding mounting:

Table A.18 – Mounting type for ball valves

DN (NPS)	150 300	600 800 900	1500 2500
15 (1/2) up to 40 (1 1/2)	Floating		Trunnion
50 (2) up to 100 (4)	Floating ^{a, b}	Trunnion ^c	

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 28 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

150 (6) and above	Trunnion
^a Single ball valves used for LIT / LG block shall be trunnion-mounted, DIB-2 configuration. ^b Double ball valves NPS 3 and 4, classes 150 and 300, shall be trunnion-mounted. ^c Double ball valves NPS 2, classes 600 and 900, shall be floating.	

A.7.1.4. ISOLATION VALVE CONFIGURATION

A.7.1.4.1. SINGLE PISTON EFFECT (SPE) OR SELF-RELIEF (SR) SEAT:

A.7.1.4.1.1. A SPE/SR assembly seat provides sealing only when differential pressure is higher from outside of the valve. When the SPE assembly seat faces higher differential pressure from inside of the valve (cavity), it occurs self-relieving.

A.7.1.4.1.2. A SPE/SR assembly seat may be provided on a metal-to-metal seat design or on a soft seated design.

A.7.1.4.1.3. Left side of Figure A.4 illustrates the sealing mechanism when pressure (or higher differential pressure) is applied from outside of the valve. The difference in the area ("D") times the line pressure creates a piston effect force which pushes the seat against the ball surface resulting in a sealing between ball and seat.

A.7.1.4.1.4. Right side of Figure A.4 illustrates the relief mechanism when a higher differential pressure is applied from the cavity of the valve. When the pressure in the valve cavity reaches certain pressure (so that the total force from cavity pressure that act on the seat is higher than the force causing by the upstream pressure), the trapped pressure will have enough force to push the seat and relief the valve cavity pressure.

Figure A.4 – SPE/SR seat assembly mechanism (illustration on a soft ball valve)

A.7.1.4.2. DOUBLE PISTON EFFECT (DPE) SEAT:

A.7.1.4.2.1. A DPE assembly seat provides sealing on both directions, when differential pressure is higher from outside/inside of the valve.

A.7.1.4.2.2. A DPE assembly seat may be provided on a metal-to-metal seat design or on a soft seated design.

A.7.1.4.2.3. Left side of Figure A.5 illustrates the sealing mechanism when pressure (or higher differential pressure) is applied from outside of the valve. The difference in the area ("D") times the line pressure creates a piston effect force which pushes the seat against the ball surface resulting in a sealing

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 29 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

between ball and seat.

A.7.1.4.2.4. Right side of Figure A.5 illustrates the sealing mechanism when pressure (or differential pressure) is applied from the cavity of the valve. The difference in the area ("D") times the cavity pressure creates a piston effect force which pushes the seat against the ball surface resulting in a sealing between ball and seat.

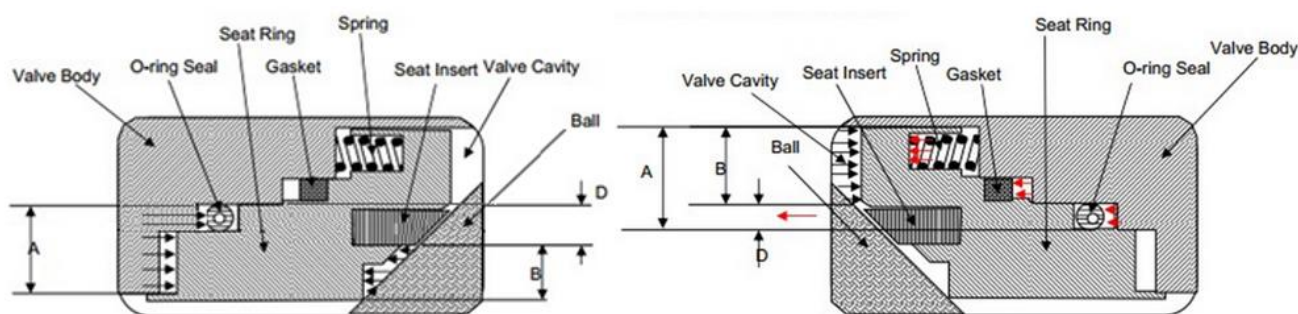


Figure A.5 – DPE seat assembly mechanism (illustration on a soft ball valve)

A.7.1.4.3. Whenever not specified in the VDS, the valve design shall consider as a standard isolation valve configuration the use of two unidirectional sealing seats, giving a characteristic of single piston effect (SPE) or self-relief (SR) on both seats.

A.7.1.4.4. To ensure adequate operational requirements, whenever specified in the VDS, the design of trunnion ball valves (metal-to-metal or soft seated) may fulfill one or more of the following functions/features:

a) DOUBLE BLOCK AND BLEED (DBB):

The DBB feature of the valve is the ability to segregate two pressure sources and to bleed/vent pressure in the valve body between the two seats when the valve has the DBB feature. The DBB feature may be obtained by using SPE/SR or DPE seats.

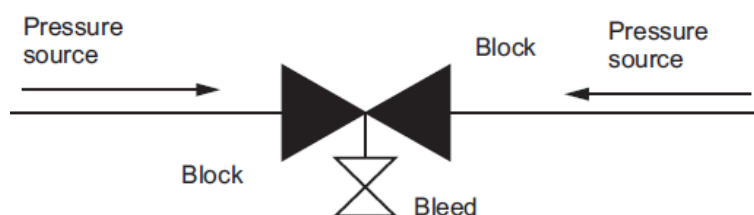


Figure A.6 – DBB feature (ref.: Double Block and Bleed - Type B of API 6D)

b) DOUBLE ISOLATION AND BLEED 1 (DIB-1):

The DIB-1 feature of the valve is the ability to provide two sealing elements to a single pressure source, and to bleed/vent between the two sealing elements. It shall be considered Upstream and Downstream as bidirectional sealing seat (DPE seats).

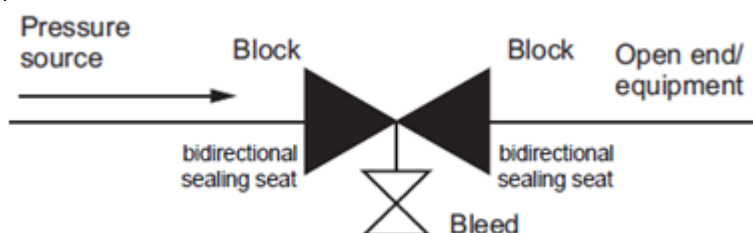


Figure A.7 – DIB-1 feature (ref.: Double Isolation and Bleed - Type B of API 6D)

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 30 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Valves designed with a DIB-1 feature shall be provided with automatic cavity-pressure relief, unless otherwise agreed. In this case, it shall be attended all requirements described on API 6D (ref. item 5.5 of API6D).

c) DOUBLE ISOLATION AND BLEED 2 (DIB-2):

The DIB-2 feature of the valve is the ability to provide two sealing elements to a single pressure source, and to bleed/vent between the two sealing elements, as Figure A.8 illustrates.

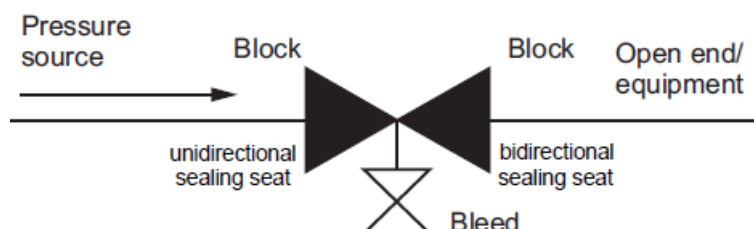
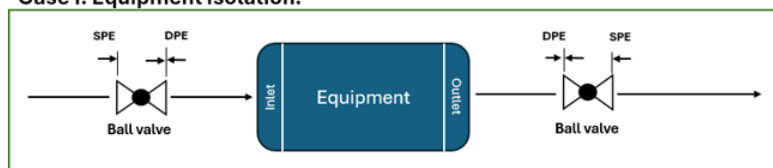


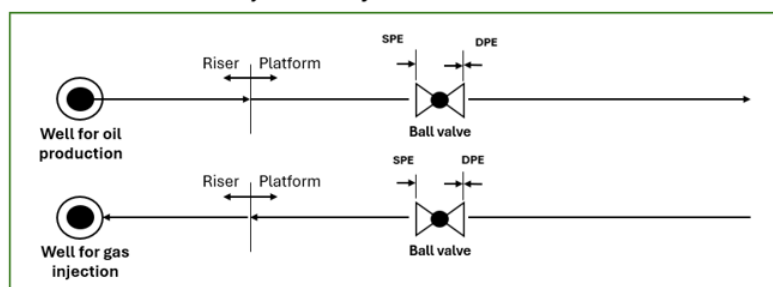
Figure A.8 – DIB-2 feature (ref.: Double Isolation and Bleed - Type B of API 6D)

A.7.1.4.5. Depending on the function of the DIB-2 valve shall be installed with seat sealing in different configurations. Figure A.9 describes three scenarios where the DIB-2 ball valves are placed differently. The assembly of a DIB-2 valve shall attend its preferred direction, according to its operation scenario.

Case I: Equipment isolation.



Case II: Production or injection of hydrocarbon.



Case III: Water lift system.

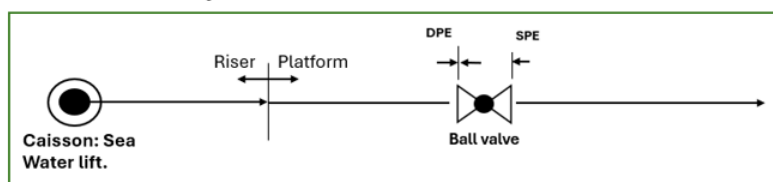


Figure A.9 – Example of DIB-2 valves assembly in different configurations.

A.7.1.4.6. All DIB-2 valves shall have a clear identification about seat sealing direction, by marking on a separate identification plate affixed to valve body both seats type of sealing (SPE or DPE).

A.7.1.4.7. Depending on detailed design, indicated in the VDS, the valve may have an isolation valve

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 31 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

configuration as follows:

Table A.19 – Isolation Valve Configuration for Ball Valves

Isolation valve configuration	Single Piston Effect (SPE) on both seats	Double Block and Bleed (DBB) Feature	Double Isolation and Bleed (DIB-2) Feature
1	Yes	No	No
2	Yes	Yes	No
3	No	Yes ¹	Yes
4	No	Yes ²	Yes

¹ DBB feature applied in the closed position (only).
² DBB feature applied in the opened and closed position (both).
Note: The use of DIB-1 feature has not been foreseen. Particular analyses of use may be conducted by Project team and/or an Operational Unit (UO).

A.7.1.5. NON-METALLIC SEALS

A.7.1.5.1. All non-metallic seals shall be suitable for the pressure, temperature and service conditions considered in this item.

A.7.1.5.2. The manufacturer of the valve shall guarantee together with your seals supplier(s) the attendance of the essential material requirements for the non-metallic seals, in order to ensure that the designed seal system works properly during the whole design life of the valve.

A.7.1.5.3. The VDS of soft seated ball valves indicates the material of the seat insert.

A.7.1.5.4. The use of certain seat insert material shall be based on the following classification:

Table A.20 – Non-metallic materials for seat insert seal design

Material	Pressure Class	Design Temp. (°C)	
		Minimum	Maximum
PTFE reinforced with 25% of Carbon	150, 300	-46	+150
Devlon V-API ¹	600, 900	-46	+120
PEEK Based	600, 900, 1500, 2500	-46	+150

¹ The use of Devlon V-API is not allowed on valves applied on AM (amine) systems.

Note: The values listed in Table A.20 presents the limits of temperature that shall be applied in the valve design considering operational conditions of it.

A.7.1.5.5. For the design of the seats / stem seals, in metal-to-metal or soft seated ball valves, the VDS contains indication about the non-metallic group material that shall be considered in the valve design.

A.7.1.5.6. The materials of each group are indicated in Table A.21, according to the following classification:

- a) Group A – Terpolymer of VF2, HFP e TFE with fluor content of ~ 67 - 70% or HNBR with %ACN between 36 and 40%. E.g.: Viton B (DuPont), Technoflon TN (Solvay Solexis);
- b) Group B – Ter- or Tetrapolymer of TFE, VF2 and PMVE with fluor content of ~ 62-68% or HNBR LT (%ACN between 36 and 40%) both with TR10 ≤ -30°C according to ASTM D1329. E.g.: Viton GLT (DuPont), Technoflon 855 (Solvay Solexis);
- c) Group C – Terpolymer of PP, TFE and VDF with higher resistance to bases or perfluoro elastomer (FFKM). e.g.: FKM Type 4- Aflas (Asashi Glass), BRE 7132 (Dyneon), FFKM- Kalrez, Chemraz, Technoflon PFR (Solvay Solexis);
- d) Group D – Terpolymer of PP, TFE and VDF with higher resistance to aromatic hydrocarbons or perfluoro elastomer (FFKM). e.g.: BRE 7132 (Dyneon), FFKM- Kalrez, Chemraz, Technoflon PFR (Solvay Solexis);

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 32 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

- e) Group E – Polytetrafluoroethylene (PTFE) based Chevron Packing or Polytetrafluoroethylene (PTFE) energized with a Co-Cr-Ni alloy UNS R30003 (Elgiloy) spring;
- f) Group F – Graphite 98% pure, Graphoil or a metallic seal.

Table A.21 – Seal groups materials

Seals Group	Application	Design Temp. ¹		Transient Temp. ²		Seals Materials	Seals Design	RGD	Suitable for	Group Restrictions
		Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)					
Group A	Normal Temperature	0	+150	0	+170	HNBR FKM Type 2	O-ring Polypak Gasket	No	Water, Utility, Sweet hydrocarbon and Chemicals	Amines Steam Aromatic hydrocarbons ⁴
Group B	Low Temperature	-30	+150	-46	+170	HNBR LT FKM Type 3	O-ring Polypak Gasket	Yes ³	Sweet hydrocarbon (Gas)	Amines, Steam, Aromatic hydrocarbons ⁴
Group C	Medium High Temperature	0	+210	0	+240	FKM Type 4 FKM Type 5 FFKM	O-ring Polypak Gasket	No	Amines, Amine based scavengers and Inhibitors, Steam	Aromatic hydrocarbons ⁴ , Xylene
Group D	Medium High Temperature + Aromatics	0	+210	0	+240	FKM Type 5 FFKM	O-ring Polypak Gasket	No	All	-
Group E ⁵	Wide Range Service	-100	+200	-100	+240	PTFE based PTFE based + UNS R30003 (Elgiloy)	Chevron Seal ⁶ Lip Seal	N/A	All	-
Group F	High Temperature	-100	+500	-100	+500	Graphite 98% Pure Graphoil Metallic Seal	Gasket C-Ring	N/A	All	-

¹ Temperature range for use of non-metallic material (i.e.: seats / stem seals) in the valve design. It shall be considered for continuous service without reducing the seals' economic life or its sealing capability.

² Temperature range considered whether the seals may be exposed for a short period of time (transient temperature spike), under a static condition (without operation), with a possible leakage but without permanently damaging the sealing system.

³ RGD according to ISO 23936-2 for valves of pressure class 300 or above.

⁴ Hydrocarbons streams containing more than 25% aromatics.

⁵ The use of Group E is acceptable in replacement of Groups A, B, C or D, as long as the design of the valve considers application of Alloy 625 overlay (partial clad) on all sealing areas.

⁶ Use of Chevron packing shall be combined with anti-extrusion PEEK rings.

A.7.1.5.7. As a reference, the use of each group seal is based to the following fluid classes & temperature

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 33 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

ranges:

Table A.22 – Indication of groups of seals according to fluid class and temperature range

Fluid Class	Temperature Range				
	Normal (0°C to +150°C)	Low (-30°C to +150°C)	Medium High (0°C to +210°C)	Wide Range (-100°C to +200°C)	High (-100°C to +500°C)
Utility	Group A	-	-	-	-
Water	Group A	-	-	-	-
Hot Water	-	-	Group C	-	-
Steam	Group C	-	Group C	-	-
Sweet Hydrocarbon ¹	Group A	Group B	Group C	-	-
Sour Hydrocarbon ²	Group C	Group E	Group C	Group E	Group F
Aromatic Hydrocarbon ³	Group D	Group E	Group D	Group E	Group F
Chemicals ⁴	Group A	-	Group C	-	-
High CO ₂ content ⁵	-	-	-	Group E	-
Amine (MEA) ⁶	Group C	-	Group C	-	-

¹ Hydrocarbon streams containing less than 1% H₂S (10.000 ppm).

² Hydrocarbon streams containing more than 1% H₂S (10.000 ppm). Qualification and production testing of elastomers and thermoplastics shall be performed in accordance with Norsok M-710 or ISO 23936 Parts 1 and 2, qualifying the materials for sour service for the temperature range specified valve datasheet.

³ Hydrocarbons streams containing more than 25% aromatics.

⁴ It shall be considered the use of Group A for all chemicals typically used in a production facility (e.g.: inhibitors, scavengers, etc.), and Group D for amine-based chemicals or xylene.

⁵ Hydrocarbon streams containing CO₂ with more than 10 mol%.

⁶ Monoethanolamine.

A.7.1.5.8. For the indication of a valve configuration, it shall be considered the following classification as a part of the valve code, according to description of valve code presented on item A.11.5:

Table A.23 – Seals group classification into valve code

Seals Group	Soft	Metal x Metal
A or B	1	5
C	2	6
D or E	3	7
F	N/A	8
Fugitive Emissions	4	9

A.7.1.5.9. The housing design of elastomeric O-rings shall prevent risk of extrusion by use of thermoplastic back-up rings on both sides (PEEK or reinforced PTFE) for valves in piping class 900 and above.

A.7.1.6. TYPICAL CONFIGURATIONS

A.7.1.6.1. This item presents typical configurations for ball valves, as a result of combinations of materials and features. The configurations herein listed are considered to create a specific VDS.

A.7.1.6.2. The referred number of the typical configuration of the valve, shown on the first column of Table A.25 and Table A.26, shall be considered as a part of the valve code, according item A.11.5.

A.7.1.6.3. BALL VALVES UP TO NPS 1 1/2 ("FORGED" VALVES)

A.7.1.6.3.1. The design of ball valves up to NPS 1 1/2 ("Forged" valves) shall consider the use of a nipple with extension of 100,00 millimeters. Table A.24 may also be applied to check valves.

A.7.1.6.3.2. For the indication of the nipple considered in the valve configuration, it shall be considered

Config #	Sealing Type	Pressure Class	Seat Insert Material	Stem Seal Material	Fire Tested	End Connection	Seats Configuration	DB B	VSL	Fugitive Emission																																
00	Soft	150, 300	PTFE + 25%C	Group B	Yes	Flanged	N/A	No	1, 2	No																																
		600, 900	PEEK				SPE x SPE																																			
		1500, 2500																																								
01	Soft	800	PTFE + 25%C	Group B	Yes	SW, SE	N/A	No	1, 2, 3																																	
02			PTFE + 25%C	Group C, E																																						
03			PEEK	Group B																																						
04			PEEK	Group C, E																																						
05	Metal to Metal		N/A	Group D, E							06	Soft	1500	PEEK	Group B	Yes	SW	SPE x SPE	No	1, 2, 3	07	Metal to Metal	N/A	Group D, E	08	Soft	2500	PEEK	Group B	Yes	BW	SPE x SPE	No	1, 2, 3	09	Metal to Metal	N/A	Group D, E	0A	Metal to Metal	800	N/A
06	Soft	1500	PEEK	Group B	Yes	SW	SPE x SPE	No	1, 2, 3																																	
07	Metal to Metal		N/A	Group D, E							08	Soft	2500	PEEK	Group B	Yes	BW	SPE x SPE	No	1, 2, 3	09	Metal to Metal	N/A	Group D, E	0A	Metal to Metal	800	N/A	Group F	Yes	SW	N/A	No	1, 2, 3								
08	Soft	2500	PEEK	Group B	Yes	BW	SPE x SPE	No	1, 2, 3																																	
09	Metal to Metal		N/A	Group D, E						0A	Metal to Metal	800	N/A	Group F	Yes	SW	N/A	No	1, 2, 3																							
0A	Metal to Metal	800	N/A	Group F	Yes	SW	N/A	No	1, 2, 3																																	

A.7.1.6.4.1. The following basic configurations shall be considered in the design of small ball and double

 PETROBRAS	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 36 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

ball valves:

Table A.26 – Typical configurations for metallic ball valves NPS 2 and above and double ball valve NPS 3 and above

Config. #	Sealing type	Seat Insert	Fire Tested	Pressure Class	Seats Configuration	DBB	VSL	Fugitive emission
0	Soft	PTFE+25%C	No	150, 300	SPE x SPE	No	1, 2	No
1			Yes				2	
2		PEEK	No	600, 900	SPE x SPE	No	1, 2	
3			Yes				2	
4		PEEK	No	600, 900 1500, 2500	SPE x SPE	Yes	1, 2	
5			Yes				2	
6		PTFE+25%C	No	150, 300	DIB-2	Yes	2, 3 ²	
7			Yes					
8		PEEK	No	600, 900 1500, 2500	DIB-2	Yes	2, 3 ²	
9			Yes					
0	Metal to Metal	N/A	No	150, 300, 600 900, 1500, 2500	SPE x SPE	No	1, 2	
1			Yes				2	
2			No	150, 300, 600 900, 1500, 2500	DIB-2	Yes	2, 3	
3			Yes					
4			Yes	150, 300, 600 900, 1500, 2500	DIB-2	Yes ¹	4	
5 ³			Yes	1500, 2500	DIB-2	Yes ¹	4	
F	Soft	PTFE+25%C	Yes	150, 300	SPE x SPE	No	2	Yes
		PEEK		600, 900 1500, 2500	SPE x SPE	Yes	2	
G		PTFE+25%C		150, 300	DIB-2	Yes	2, 3 ²	
		PEEK		600, 900 1500, 2500	DIB-2	Yes	2, 3 ²	
F	Metal to Metal	N/A		150, 300, 600 900, 1500, 2500	SPE x SPE	No	2	
G				150, 300, 600 900, 1500, 2500	DIB-2	Yes	2, 3	
U				150, 300, 600 900, 1500, 2500	DIB-2	Yes ¹	4	
E ³				1500, 2500	DIB-2	Yes ¹	4	

¹ DBB designed for fully opened and closed position. The valve shall be able to perform DBB test on both conditions.

² Soft seated ball valves with VSL-3 shall not be considered for use in hydrocarbon service lines.

³ Valve configurations used for HIPPS application.

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001		REV. B
	MARLIM LESTE E SUL				SHEET: 37 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE				ESUP
					INTERNAL

A.7.1.6.5. RISING STEM BALL VALVES

A.7.1.6.5.1. The following basic configuration shall be considered in the design of rising stem ball valves:

Table A.27 – Typical configurations for rising stem ball valves

Config. #	Sealing type	Seat Insert	Fire Tested	Pressure Class	VSL
9	Metal to Metal	N/A	Yes	600,900	2,3

 PETROBRAS	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 38 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

A.7.1.6.6. DOUBLE BALL VALVES

Table A.28 – Typical configurations for metallic double ball valves up to NPS 2

Config. #	Sealing type	Seat Seat Insert	Pressure Class	Stem Seal Material	Fire Tested	End Connection	VSL	Fugitive emission
01	Soft	PTFE+25%C	150, 300	Group B	Yes	Flanged	2	No
		PEEK	600, 900, 1500, 2500					
02		PTFE+25%C	150, 300					
		PEEK	600, 900, 1500, 2500					
03		PTFE+25%C	150, 300	Group E		Flanged		
		PEEK	600, 900, 1500, 2500			Flanged x NPT		
04		PTFE+25%C	150, 300			Flanged		
		PEEK	600, 900, 1500, 2500			Flanged x NPT		
05	Metal to Metal	N/A	150, 300, 600 900, 1500, 2500	Group E	Flanged			
06					Flanged x NPT			
07				Group F	Flanged			
08					Flanged x NPT			
F1	Soft	PTFE+25%C	150, 300	Group B	Yes	Flanged	2	Yes
		PEEK	600, 900, 1500, 2500					
F2		PTFE+25%C	150, 300			Flanged x NPT		
		PEEK	600, 900, 1500, 2500					
F3		PTFE+25%C	150, 300	Group E		Flanged		
		PEEK	600, 900, 1500, 2500			Flanged x NPT		
F4		PTFE+25%C	150, 300					
		PEEK	600, 900, 1500, 2500					
F5	Metal to Metal	N/A	150, 300, 600 900, 1500, 2500	Group E	Flanged			
F6					Flanged x NPT			
F7				Group F	Flanged			
F8					Flanged x NPT			

A.7.1.7. MATERIALS CONFIGURATIONS

A.7.1.7.1. STEM MATERIALS

A.7.1.7.2. Table A.29 presents the standardized materials for each combination of material and pressure class of the valve. The stem materials listed herein are considered to create a specific VDS.

A.7.1.7.3. Alternative materials are presented when applicable. The use of it shall be approved by PETROBRAS.

Table A.29 – Stem materials according to material class & pressure class of the valve

[illegible]

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 40 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Material Class	Pressure Class							Alternative Materials
	150	300	600	800	900	1500	2500	
Alloy Steel (ASTM A333 Gr.8)	ASTM B637 (UNS N07718)							N/A

¹ Whenever Group E is considered as seats / stem seals material in metal-to-metal ball valves (due to low temperature requirements), it shall be used ASTM B637 (UNS N07718).

A.7.1.7.4. SPRING MATERIAL

A.7.1.7.4.1. All valves in carbon steel body material shall consider the use of Alloy X750 (UNS N07750) as spring material, to be used on the seat assembly. Other body material as below:

Table A.30 – Spring Material

Body Material	PREN	Requirements	Spring Material	Alternative Material			
Super Duplex	PREN > 40	Resistant to chloride and sour service - H ₂ S	UNS N06625	UNS N10276	UNS R30003		
Duplex	35 > PREN > 40	Resistant to chloride and sour service - H ₂ S	UNS N06625	UNS N10276	UNS R30003		
SS (316, ...)	24 > PREN > 35	Resistant to chloride and sour service - H ₂ S	UNS N07718	UNS S06625	UNS N10276	UNS R30003	
Carbon and Low Alloy	PREN < 24	Resistant to chloride and sour service - H ₂ S	UNS N07750 (Inconel X-750)	UNS N07718	UNS S06625	UNS N10276	UNS R30003
Bronze		Resistant to chloride service.	UNS N05500 (Monel K500)				

Note: The table above may be use for spring of check valves.

A.7.1.7.5. METALLIC COATING

A.7.1.7.5.1. Whenever specified in the VDS use of partial clad, it shall be considered the application according:

Table A.31 – Specification of metallic coating (partial clad) for ball valves

Partial Clad	
Stainless Steel (AISI 316) Weld Overlay	Valves with VSL = 2 which Material Class is Carbon Steel or Low Temperature Carbon Steel
Nickel Alloy (Alloy 625) Weld Overlay	Valves with VSL ≥ 3 and all valves with seals (seats/stem) using Group E. Note: Only applicable for valves with Material Classes Carbon Steel, Low Temperature Carbon Steel or Stainless Steel

A.7.1.7.5.2. Whenever specified in the VDS partial clad, it shall be considered the application of CRA

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 41 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

(according Table A.31) on all body sealing areas.

A.7.1.7.5.3. Whenever specified in the VDS full clad, it shall be according to item A.8.2.1.

A.7.1.7.5.4. All metallic coatings shall attend the specific requirements listed in item A.8.2.1.

A.7.1.7.6. HARD COATING

A.7.1.7.6.1. All designs of soft ball valves shall consider the application of hard coating on seats / ball according:

Table A.32 – Specification of hard coating on seats / ball on soft ball valves

VSL	Pressure Class						
	150	300	600	900	1500	2500	10000
VSL-1	N/A						
VSL-2	N/A				Tungsten Carbide or Chrome Carbide		
VSL-3	N/A		Tungsten Carbide or Chrome Carbide				
VSL-4	N/A						

A.7.1.7.6.2. All designs of metal-to-metal ball valves shall consider the use of hard coating on seats / ball according:

Table A.33 – Specification of hard coating on seats / ball on metal-to-metal ball valves

VSL	Pressure Class						
	150	300	600	900	1500	2500	10000
VSL-1	Chromium Electroplate ¹		Tungsten Carbide ² or Chrome Carbide				
VSL-2							
VSL-3	Tungsten Carbide ² , Chrome Carbide or Chrome-Nickel Spray and Fuse						
VSL-4							

¹ If requested by the manufacturer, it may be acceptable the use of tungsten carbide or chrome carbide coating.

² For valves which maximum design temperature 210°C.

A.7.1.7.6.3. All hard coatings application shall attend the specific requirements listed in item A.8.2.2.

A.7.1.7.7. SOFT SEATED BALL VALVES

Table A.34 – Typical configurations for soft seated ball valves according to material class

Material Class	Pressure Class	Seat Insert Material	Body Material ²	Ball / Seats Material ³
Carbon Steel	150 300	PTFE + 25%C	ASTM A105 or ASTM A216 WCB + Partial Clad ¹	AISI 410
	600 800 900	PEEK		AISI 410 + Hard Coating ³
	1500 2500	PEEK		AISI 410 + Hard Coating ³

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 42 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL
Low Temperature Carbon Steel	150 300	PTFE + 25%C	ASTM A350 LF2 Cl1 or ASTM A352 Gr.LCC + Partial Clad ¹	AISI 316
	600 800 900	PEEK		AISI 316 + Hard Coating ³
	1500 2500	PEEK		AISI 316 + Hard Coating ³
Carbon Steel with Organic Coating (Onshore)	150 300	PTFE + 25%C	ASTM A105 or ASTM A216 WCB	ASTM A995 Gr.1b
Carbon Steel with Organic Coating (Offshore)	150 300	PTFE + 25%C	ASTM A105 or ASTM A216 WCB	UNS S31803
	1500	PEEK		UNS S31803 + Hard Coating ³
Stainless Steel	150 300	PTFE + 25%C	ASTM A182 Gr. F316 or ASTM A351 Gr. CF8M + Partial Clad ¹	AISI 316
	600 800 900	PEEK		AISI 316 + Hard Coating ³
	1500 2500	PEEK		AISI 316 + Hard Coating ³
Duplex Steel	150 300	PTFE + 25%C	ASTM A182 Gr. F51 or ASTM A995 Gr. 4a or ASTM A995 Gr. 1b (onshore only)	UNS S31803
	600 800 900	PEEK		UNS S31803 + Hard Coating ³
	1500 2500	PEEK		UNS S31803 + Hard Coating ³
Super Duplex Steel	150 300	PTFE + 25%C	ASTM A182 Gr. F55 or ASTM A995 Gr 6a	UNS S32760
	600 800 900	PEEK		UNS S32760 + Hard Coating ³
	1500 2500	PEEK		UNS S32760 + Hard Coating ³
Alloy Steel (ASTM A333 Gr.3)	600 800 900	PEEK	ASTM A350 Gr. LF3 or ASTM A352 Gr. LF3	UNS N06625 + Hard Coating ³
Alloy Steel (ASTM A333 Gr.8)	2500	PEEK	ASTM A522 Type I	ASTM A522 Type I + Hard Coating ³

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 43 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

¹ Partial clad may be requested in the VDS and shall be according Table A.31.

² The use of forging or casting shall be according VSL classification. For valves with NPS < 2, It shall be considered only the use of forging material.

³ Hard Coatings may be requested in the VDS and shall be applied according Table A.32.

A.7.1.7.8. METAL SEATED BALL VALVES

Table A.35 – Typical configurations for metal-to-metal seated ball valves according to material class

Material Class	Pressure Class	Body Material ^{1, 2}	Ball / Seats Material ³
Carbon Steel	150 300 600 800 900 1500 2500 10000psi	ASTM A105 or ASTM A216 WCB + Partial Clad ¹	AISI 410 + Hard Coating ³
Low Temperature Carbon Steel		ASTM A350 LF2 Cl1 or ASTM A352 Gr.LCC + Partial Clad ¹	AISI 316 + Hard Coating ³
Stainless Steel		ASTM A182 Gr. F316L or ASTM A351 Gr. CF8M + Partial Clad ¹	AISI 316 + Hard Coating ³
Duplex Steel		ASTM A182 Gr. F51 or ASTM A995 Gr 4A	UNS S31803 + Hard Coating ³
Super Duplex Steel		ASTM A182 Gr. F55 or ASTM A995 Gr 6A	UNS S32760 + Hard Coating ³
Alloy Steel (ASTM A333 Gr.3)	600 800 900	ASTM A350 Gr. LF3 or ASTM A352 Gr. LF3	UNS N06625 + Hard Coating ³
Alloy Steel (ASTM A333 Gr.8)	2500 10000psi	ASTM A522 Type I	ASTM A522 Type I + Hard Coating ³

¹ Partial clad may be requested in the VDS and shall be according Table A.31.

² The use of forging or casting shall be according VSL classification. For valves with NPS < 2, It shall be considered only the use of forging material.

³ Hard Coatings may be requested in the VDS and shall be applied according Table A.32.

A.7.1.8. BALL VALVES ACCORDING TO IOGP S-562

A.7.1.8.1. Ball valves included in scope of S-562 shall comply with S-562, this Annex and following

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 44 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
requirements/modifications. A.7.1.8.2. Design validation shall be as required by Table A.3. A.7.1.8.3. Process fabrication for body materials shall be according Table A.7. A.7.1.8.4. Table J.3 of S-562, sequence 7, shall be read as: Low-pressure pneumatic seat test at 5 psi to 14.5 psi (0.34 bar to 1 bar) per H.3.2 Type I. A.7.1.8.5. For fluid services such as aromatic hydrocarbons, steam, methanol, amines, strong alkalis and some Freons, Table A.21 and Table A.22 shall be used as reference to selection of suitable sealing material. A.7.1.8.6. For classes 150 to 600, all sizes, and for classes 900 to 2500, sizes NPS 8 (DN 200), vents and drains shall have double seal (axial outboard and radial inboard) parallel threads with locking ring. During loosening of the fitting, the design configuration shall ensure pressure is relieved from the inboard seal without thread disengagement. A.7.1.8.7. NDE, tests and documentation of each valve shall be according A.7.1.8.7.1 to A.7.1.8.7.4. A.7.1.8.7.1. VSL-1 valves shall comply with S-562 QSL-1 requirements. A.7.1.8.7.2. VSL-2 valves shall comply with S-562 QSL-2 or QSL-2G requirements as applicable. A.7.1.8.7.3. VSL-3 valves shall comply with S-562 QSL-3 or QSL-3G requirements as applicable. A.7.1.8.7.4. VSL-4 valves shall comply with S-562 QSL-4 requirements. A.7.1.8.8. SDV, BDV, XV and ADV valves shall be fire tested. For other valves, fire type-tested certified design shall be required according to design premises. A.7.2. GATE VALVE A.7.2.1. DESIGN REQUIREMENTS A.7.2.1.1. It shall be considered a Metal-to-Metal seated design for all types of gate valve. Expanding gate valves may have an additional non-metallic insert. A.7.2.1.2. Whenever specified in the VDS, the manufacturer shall attend to the requirement of coating, such as metallic coating, hard coating and/or organic coating specified for some parts and sealing surfaces, such as in the body, bonnet, gate, seats, etc. In this case, the manufacturer shall attend the applicable requirements listed on item A.8.2. A.7.2.1.3. Gate valves, with flanged or butt weld ends, shall have face to face dimensions according to ASME B16.10. A.7.2.1.4. End connections shall be according: a) Flanged ends: according to ASME B16.5 up to DN 600 (NPS 24) for ASME classes 150 to 1500, and up to DN 300 (NPS 12) for class 2500; according to ISO 27509 for DN 400 (NPS 14) to NPS 600 (NPS 24) in ASME class 2500; according to ASME B16.47 Series A from DN 650 (NPS 26) up to DN 1500 (NPS 60) for ASME Classes 150 to 600, and from DN 650 (NPS 26) up to DN 1200 (NPS 48) for ASME class 900. b) Screwed ends: according to ASME B1.20.1 NPT; c) Butt weld: according to ASME B16.25; d) Socket weld: according to ASME B16.11.			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 45 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

A.7.2.1.5. The design of gate and body guides shall be optimized with respect to chamfers, clearances and machining to ensure valves operate smoothly during operation without self-locking, seizure, internal wear or galling effects in the absence of any form of lubrication.

A.7.2.1.6. If the design of a gate valve requires the use of drain and vent ports, the plugs shall be specified considering the alert given in item A.6.1.1.9.

A.7.2.1.7. Up to and including DN 40 (NPS 1 ½), the valve shall be furnished with a solid wedge.

A.7.2.2. DESIGN STANDARD

A.7.2.2.1. The following standards shall be considered for the design of gate valves:

Table A.36 – Design Standards for gate valves

Description	Body / Closure Material					
	Forging			Forging or Casting		
	Socket weld	Butt weld	Flange	Flange		
DN (NPS)	15 up to 40 (1/2 up to 1 1/2)	25 up to 40 (1 up to 1 1/2)	46 up to 346 (1 13/16 up to 13 5/8)	50 up to 600 (2 up to 42)	50 up to 400 (2 up to 24)	50 up to 300 (2 up to 12)
Class	800 and 1500	2500	10.000 psi	150 and 300	600 to 1500	2 500
Standard	API 602	ASME B16.34 LTD	API 6A	API 600 or API 603 / IOGP S-611 ^a		

^a As applicable. See also A.7.2.5

A.7.2.3. NON-METALLIC SEALS

A.7.2.3.1. All non-metallic seals shall be suitable for the pressure, temperature and service conditions specified in the VDS.

A.7.2.3.2. The manufacturer of the valve shall guarantee together with your seals supplier(s) the necessary material requirements for the non-metallic seals to ensure that the designed seal system works properly during the whole design life of the valve.

A.7.2.3.3. For solid wedge gate valves, the design shall consider the use of gaskets made of flexible graphite with inconel wire for the stem seal.

A.7.2.3.4. The design of a slab gate valve shall consider the use of non-metallic seals, mounted on seats and stem, according to the materials specified in the VDS.

A.7.2.4. TYPICAL CONFIGURATIONS

A.7.2.4.1. This item presents typical configurations for gate valves, as a result of combinations of materials and features. The following configurations are considered to create a specific VDS.

A.7.2.4.2. The referred number of the typical configuration of a gate valve, shown on the first column of

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 46 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Table A.37, Table A.38 and Table A.39, shall be considered as a part of the valve code, according item A.11.5.

A.7.2.4.3. TRIM MATERIAL CONFIGURATION FOR SOLID WEDGE GATE VALVES

Table A.37 – TRIM material configuration for solid wedge gate valves

Material Class	Body Material	API 600 TRIM Number	Gate Material	Seat Material	Stem Material
Carbon Steel	ASTM A105 or ASTM A216 Gr. WCB	Trim Number 8 (API 600 / 602)	AISI 410	Stellite (Co-Cr Alloy)	ASTM A276 (UNS S41000)
	ASTM A105 or ASTM A216 Gr. WCB	Trim Number 5 (API 600 / 602)	Stellite (Co-Cr Alloy)	Stellite (Co-Cr Alloy)	ASTM A276 (UNS S41000)
	ASTM A350 LF2 Cl 1 or ASTM A352 Gr. LCC	Trim Number 16 (API 600 / 602)	AISI 316	Stellite (Co-Cr Alloy)	ASTM A276 (UNS S31803)
	ASTM A105 or ASTM A216 Gr. WCB + Organic Coating	-	ASTM A995 Gr. 1b	ASTM A995 Gr. 1b	ASTM A276 (UNS S32550)
			ASTM A995 Gr. 4a	ASTM A995 Gr. 4a	ASTM A276 (UNS S31803)
Stainless Steel	ASTM A182 Gr. F316 or ASTM A351 Gr. CF8M	Trim Number 16 (API 600 / 602)	AISI 316	Stellite (Co-Cr Alloy)	A276 316 / 316L
Duplex Steel	ASTM A182 F51 or ASTM A995 Gr. 4a	-	UNS S31803	UNS S31803	ASTM A276 (UNS S31803)
	ASTM A182 F55 or ASTM A995 Gr. 6a	-	UNS S32760	UNS S32760	ASTM A276 (UNS S32760)
Nickel Alloy	ASTM B564 (UNS N06625)	-	ASTM B564 (UNS N06625)	ASTM B564 (UNS N06625)	ASTM B637 (UNS N07718)
Uncommon Materials	Bronze ASTM B61 (UNS C92200)	-	ASTM B61 (UNS C92200)	ASTM B61 (UNS C92200)	ASTM B61 (UNS C92200)
	Gray Iron ASTM A126 Cl. B	-	ASTM B62 (UNS C83600)	ASTM B62 (UNS C83600)	ASTM B62 (UNS C83600)
	Nickel Aluminum Bronze ASTM B148 (UNS C95800)	-	ASTM B148 (UNS C95800)	ASTM B148 (UNS C95800)	ASTM B150 (UNS C63200)

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 47 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	

A.7.2.4.4. OBTURATOR TYPE

Table A.38 – Obturator type for gate valves

Obturator type	
0	Solid wedge
1	Slab gate
2	Expanding gate
3	Flexible wedge

A.7.2.4.5. TRIM DESIGN

Table A.39 – Trim selection

TRIM design	
1	Standard Trim
2	Alternative Trim
3	Special Trim
F	Standard Trim, with fugitive emission

A.7.2.5. GATE VALVES ACCORDING TO IOGP S-611

A.7.2.5.1. Gate valves included in scope of S-611 shall comply with S-611 and following requirements/modifications.

A.7.2.5.2. Design validation shall be as required by Table A.3.

A.7.2.5.3. Process fabrication for body materials shall be according to Table A.7.

A.7.2.5.4. First paragraph of S-611 itemH.3.5 shall be read as: valves shall be tested with full pressure end thrust effect to check the effectiveness of body joints and tightness as per table H.5. Test shall be carried out with horizontal flow bore and stem horizontal to demonstrate compliance with 5.6.3/5.6.5 (API 600/API 603). For this selected valve from Table H.5, functional test in accordance with H.3.6.2, except step (a) (2), shall be carried out over five cycles.

A.7.2.5.4.1. NDE, tests and documentation of each valve shall be according A.7.2.5.4.2 to A.7.2.5.4.5.

A.7.2.5.4.2. VSL-1 valves shall comply with s-611 QSL-1 requirements;

A.7.2.5.4.3. VSL-2 valves shall comply with s-611 QSL-2 or QSL-2G requirements as applicable;

A.7.2.5.4.4. VSL-3 valves shall comply with s-611 QSL-3 or QSL-3G requirements as applicable;

A.7.2.5.4.5. VSL-4 valves shall comply with s-611 QSL-4 requirements.

A.7.3. CHECK VALVE

A.7.3.1. DESIGN REQUIREMENTS

A.7.3.1.1. Check valves, with flanged or butt weld ends, shall have face to face dimensions according to

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 48 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

ASME B16.10.

A.7.3.1.2. End connections shall be according:

a) Flanged ends: according to ASME B16.5 up to DN 600 (NPS 24) for ASME classes 150 to 1500, and up to DN 300 (NPS 12) for class 2500; according to ASME B16.47 Series A from DN 650 (NPS 26) up to 1500 (NPS 60) for ASME Classes 150 to 600, and from DN 650 (NPS 26) up to DN 1200 (NPS 48) for ASME Class 900; according to ISO 27509 for DN 350 (NPS 14) up to DN 500 (NPS 24) for ASME Class 2500.

- a) Screwed ends: according to ASME B1.20.1 NPT;
- b) Butt weld: according to ASME B16.25;
- c) Socket weld: according to ASME B16.11.

A.7.3.1.3. For other materials not specified in the VDS, such as bolts, nuts, washers and lock pins, it shall be considered the use of materials with similar corrosion resistance than the materials indicated for the internals.

A.7.3.1.4. Whenever specified in the VDS, the manufacturer shall attend to the coating, such as metallic coating, hard coating and/or organic coating specified for some parts and sealing surfaces. In this case, the manufacturer shall attend the applicable requirements listed on item A.8.2.

A.7.3.1.5. In case the design of a check valve considers the use of drain and vent ports, the plugs shall be specified considering the alert given in item A.6.1.1.9.

A.7.3.2. DESIGN STANDARD

A.7.3.2.1. The following standards shall apply to the design of check valves:

Table A.40 – Design Standards for check valves

Description	Body / Closure Material							
	Casting	Forging	Forging	Forging or Casting				Forging
	Flanged or Screwed End	Flanged or Socket weld	Butt welding	Flanged, wafer and lug				Flanged
DN (NPS)	15 up to 40 (1/2 up to 1 1/2)	15 up to 40 (1/2 up to 1 1/2)	25 up to 40 (1 up to 1 1/2)	50 up to 1200 (2 up to 48)	50 up to 1050 (2 up to 42)	50 up to 600 (2 up to 24)	50 up to 300 (2 up to 12)	50 up to 254 (2 up to 10)
Class	150, 200	800 and 1500	2500	150 and 300	600	900 and 1500	2500	10.000 psi
Standard	MSS SP-80	API 602	ASME B16.34 LTD	API 594, API 6D				API 6A

A.7.3.3. NON-METALLIC SEALS

A.7.3.3.1. For the design of soft seated dual plate check valve, the VDS contains indication about the non-metallic group material that shall be considered in the valve design. In this case, Group A – Terpolymer of VF2, HFP e TFE with fluor content of ~ 67 - 70% or HNBR with %ACN between 36 and 40%. E.g.: Viton B

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 49 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

(DuPont), Technoflon TN (Solvay Solexis).

Table A.41 – Seal group materials for soft seated dual plate check valve

Seals Group	Application	Operating Temp. ¹		Design Temp. ²		Seals Materials	Seals Design	RGD	Suitable for	Group Restrictions
		Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)					
Group A	Normal Temperature	0	+150	0	+170	HNBR FKM Type 2	O-ring Polypak Gasket	No	Water, Utility, Sweet hydrocarbon and Chemicals	Amines, Steam, Aromatic hydrocarbons ³

¹ Temperature range considered for continuous service without reducing the seals' economic life or its sealing capability.

² Temperature range considered whether the seals may be exposed for a short period of time (transient temperature spike), under a static condition (without operation), with a possible leakage but without permanently damaging the sealing system.

³ Hydrocarbons streams containing more than 25% aromatics.

A.7.3.4. TYPICAL CONFIGURATIONS

A.7.3.4.1. This item presents typical configurations for check valves, as a result of combinations of materials and features. The following configurations are considered to create a specific VDS.

A.7.3.4.2. The referred number of the typical configuration of a check valve, shown on the first column of Table A.42, Table A.43 and Table A.44, shall be considered as a part of the valve code, according item A.11.5.

A.7.3.4.3. TRIM MATERIAL ACCORDING TO MATERIAL CLASS

Table A.42 – TRIM material according to material class

Material Class	Body Material	Soft Sealing	Metal-to-metal Sealing	
		Primary TRIM	Primary TRIM ¹	Secondary TRIM ²
Carbon Steel	ASTM A105 or ASTM A216 WCB	Trim Number 1 (API 594)	Trim Number 8 (API 594)	Trim Number 5 (API 594)
Low Temperature Carbon Steel	ASTM A350 LF2 CL1 or ASTM A352 LCC	Trim Number 10 (API 594)	Trim Number 12 (API 594)	N/A
Stainless Steel	ASTM A182 F316 or ASTM A351 CF8M	Trim Number 10 (API 594)	Trim Number 12 (API 594)	N/A
Duplex Steel (Onshore)	ASTM A995 Gr. 1b	ASTM A995 Gr. 1b	N/A	N/A
Duplex Steel (Offshore)	ASTM A182 F51 or ASTM A995 Gr. 4a	ASTM A182 F51 or ASTM A995 Gr. 4a	ASTM A182 F51 or ASTM A995 Gr. 4a	N/A
Superduplex Steel	ASTM A182 F55 or ASTM A995 Gr. 6a	ASTM A182 F55 or ASTM A995 Gr. 6a	ASTM A182 F55 or ASTM A995 Gr. 6a	N/A

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 50 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Material Class	Body Material	Soft Sealing	Metal-to-metal Sealing	
		Primary TRIM	Primary TRIM ¹	Secondary TRIM ²
Alloy Steel (ASTM A333 Gr.3)	ASTM A350 LF3 or ASTM A352 LF3 + Alloy 625 (UNS N06625)	N/A	ASTM A350 LF3 + Alloy 625 (UNS N06625)	N/A
Alloy Steel (ASTM A333 Gr.8)	ASTM A522 Type I	N/A	ASTM A522 Type I	N/A
Alloy Steel (ASTM A333 Gr.8) with nickel-based alloy cladding	ASTM A522 Type I + Alloy 625 (UNS N06625)	N/A	ASTM A522 Type I + Alloy 625 (UNS N06625)	N/A
Nickel Aluminum Bronze	ASTM B148 (UNS C95800)	ASTM B148 (UNS C95800)	N/A	N/A
Gray Iron	ASTM A126 Cl B	TRIM AA (API 594)	N/A	N/A

A.7.3.4.4. OBTURATOR TYPE

Table A.43 – Obturator type for check valves

Config. #	Type
0	Piston
1	Dual plate
2	Swing
3	Axial non-slam
4	Ball
5	Swing, spring loaded, non-slam
6	Manufacturer standard

A.7.3.4.5. TRIM SELECTION

Table A.44 – TRIM selection

Config. #	Type	Body Construction
1	Primary TRIM (Soft)	Wafer
2	Primary TRIM (Metal x Metal)	Wafer/SW
3	Secondary TRIM (Metal x Metal)	Wafer
4	Alternative TRIM	Wafer
5	Primary TRIM (Metal x Metal)	Double Flanged Short Pattern or Studded End (API 6A)
6	Lined	Flanged

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 51 OF 86
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL

A.7.4. GLOBE VALVE

A.7.4.1. DESIGN REQUIREMENTS

A.7.4.1.1. It shall be considered a metal-to-metal seated design for all types of globe valve.

A.7.4.1.2. Whenever specified in the VDS, the manufacturer shall attend to the requirement of coating, such as metallic coating, hard coating and/or organic coating specified for some parts and sealing surfaces, such as in the body, etc. In this case, the manufacturer shall attend the applicable requirements listed on item A.8.2.

A.7.4.1.3. Globe valves, with flanged or butt weld ends, shall have face to face dimensions according to ASME B16.10.

A.7.4.1.4. End connections shall be according:

- Flanged ends: According ASME B16.5 up to DN 600 (NPS 24) for ASME classes 150, 300, 600 and 900, according to ASME B16.47 Series A from DN 650 up to DN 1500 (NPS 26-60) for and from DN 650 up to DN 1200 (NPS 26-48) for ASME class 900.
- Screwed ends: according to ASME B1.20.1 NPT;
- Butt weld: according to ASME B16.25;
- Socket weld: according to ASME B16.11.

A.7.4.2. DESIGN STANDARD

A.7.4.2.1. The following standards shall apply to the design of globe valves:

Table A.45 – Design Standards for globe valves

Description	Forging		Casting or Forging	
	Socket Weld	Butt Weld	Flange	
DN ^a (NPS)	15 up to 40 (1/2 up to 1 1/2)	25 up to 40 (1 up to 1 1/2)	50 up to 600 (2 up to 24)	50 up to 300 (2 up to 12)
Class	800 and 1500	2500	150 up to 1500	2500
Standard	API 602	ASME B16.34 LTD	API 623 ^b	
^a DN =Nominal diameter, in millimeters (mm).				
^b BS 1873 can be accepted as well.				

A.7.4.3. TYPICAL CONFIGURATIONS

A.7.4.3.1. This item presents typical configurations for globe valves, as a result of combinations of materials and features. The following configurations are considered to create a specific VDS.

A.7.4.3.2. The referred number of the typical configuration of a globe valve, shown on the first column of Table A.46 and Table A.47, shall be considered as a part of the valve code, according item A.11.5.

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 52 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

A.7.4.3.3. TRIM MATERIAL CLASS CONFIGURATION

Table A.46 – TRIM design code for globe valves

Material Class	Body Material	Metal-to-metal Sealing		Metal-to-metal Sealing, alternative face type
		Primary TRIM ¹	Secondary TRIM	Primary TRIM ¹
		1	2	3
Carbon Steel	ASTM A105 or ASTM A216 WCB	CR13 and HF (BS 1873)	HF (BS 1873)	
Carbon Steel with organic coating	ASTM A105 or ASTM A216 WCB	ASTM A995 Gr. 4a	ASTM A995 Gr 1b	
Low Temperature Carbon Steel	ASTM A350 LF2 Cl.1 or ASTM A352 LCC	AISI 316 + Stellite	N/A	
Stainless Steel	ASTM A182 F316L or ASTM A351 CF8M	AISI 316 + Stellite	N/A	
Duplex Steel	ASTM A182 F51 or ASTM A995 Gr. 4a	ASTM A182 F51 or ASTM A995 Gr. 4a	N/A	
Super duplex Steel	ASTM A182 F55 or ASTM A995 Gr. 6a	ASTM A182 F55 or ASTM A995 Gr. 6a	N/A	ASTM A182 F55 or ASTM A995 Gr. 6a
Alloy Steel (ASTM A333 Gr.3)	ASTM A350 LF3 or ASTM A352 LF3	ASTM A350 LF3	N/A	
Alloy Steel (ASTM A333 Gr.8)	ASTM A522 Type I	ASTM A522 Type I	N/A	
Nickel Aluminum Bronze	ASTM B148 (UNS C95800)	NAB (BS 1873)	N/A	

A.7.4.3.4. OBTURATOR TYPE

Table A.47 – Obturator type for globe valves

Config. #	Type
0	Bevelled disc
1	Angular

A.7.5. BUTTERFLY VALVE

A.7.5.1. DESIGN REQUIREMENTS

A.7.5.1.1. It shall be considered the following types of butterfly valves: Category A (concentric), Category B (Double offset) and Category B (Triple Offset).

A.7.5.1.2. All butterfly valves category B with triple offset shall consider a metal-to-metal seated design.

A.7.5.1.3. Whenever specified in the VDS, the manufacturer shall attend to the requirement of coating, such as metallic coating and/or hard coating specified for some parts and sealing surfaces, such as in the body or disc. In this case, the manufacturer shall attend the applicable requirements listed on items A.7.5.4.3 and A.8.2.

A.7.5.1.4. Depending on its function, the category B butterfly valve shall be installed with high pressure

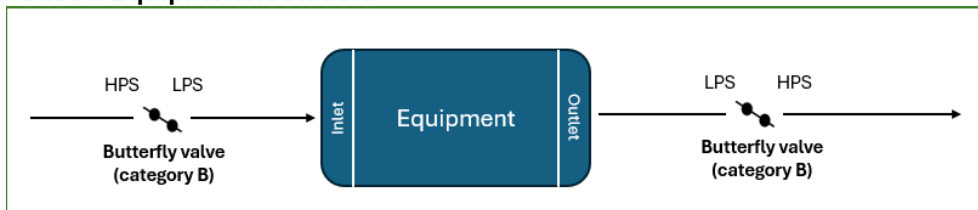
 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 53 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

side (HPS) in different configurations. Figure A.10 shows three scenarios where those valves are placed differently.

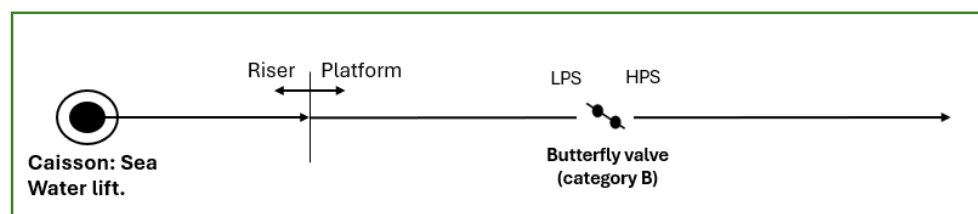
A.7.5.1.5. The manufacturer shall verify the maximum pressure that produces a leak rate acceptable per API 598 for each sealing direction.

A.7.5.1.6. Category B butterfly valves not having the same pressure rating from both directions shall be clear and permanently marked with “High Pressure Side” in an appropriate location.

Case I: Equipment isolation.



Case II: Water lift system.



HPS – High Pressure Side
LPS – Low Pressure Side

Figure A.10 – Examples of assembly configuration of category B butterfly valves with not equal pressure rating in both directions.

A.7.5.1.7. Butterfly valves and its actuators shall be designed and tested considering the maximum differential pressure equal to the maximum pressure rating of the associated flange class.

A.7.5.2. DESIGN STANDARD

A.7.5.2.1. The following standards shall apply to the design of butterfly valves:

Table A.48 – Design Standards for butterfly valves

Description	Category A	Category B		
	Concentric	Double offset and Triple offset		
	Lug	Lug ^b		Flanged ^c (Short Pattern)
	Ductile Iron	Forging or Casting		
DN ^a (NPS)	50 to 1200 (2 to 48)	50 to 1500 (2 to 60)	75 to 1500 (3 to 60)	75 to 1500 (3 to 60)
Class	Maximum Working Pressure (MWP)	150 and 300	600	150 up to 600
Standard	API 609			
^a DN = Nominal diameter, in millimeters (mm); ^b Usually up to NPS 20; ^c Usually NPS 24 and above.				

A.7.5.3. NON-METALLIC SEALS

A.7.5.3.1. For the design of seats / stem seals, in butterfly valves Category A or B, the following materials

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 54 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

shall be considered:

Table A.49 – Non-metallic materials for seats / stem seal design

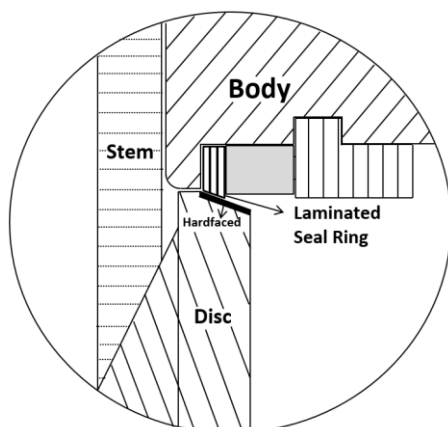
Type	Material	Minimum Temp. (°C)	Maximum Temp. (°C)
Category A	NBR	-10	+80
	FKM	-10	+150
Category B (Double Offset)	RPTFE	-46	+260
Category B (Triple Offset)	Graphite	-240	+550

Note: Temperature values listed in Table A.49 represents the limits of use the non-metallic material on a butterfly valve design.

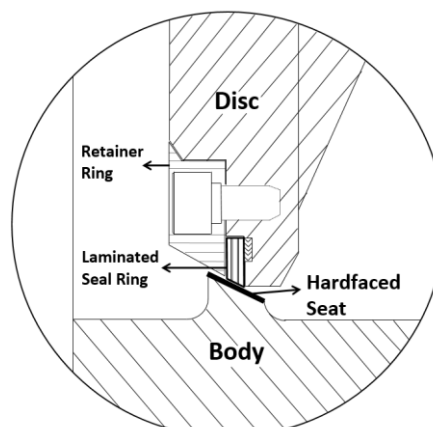
A.7.5.4. MATERIAL CONFIGURATION

A.7.5.4.1. CATEGORY B (TRIPLE OFFSET) CONFIGURATION

A.7.5.4.2. For the design of butterfly valves category B (triple offset), it may be considered one of the following configurations:



(a) Seal ring fixed to body & hard coating on disc



(b) Seal ring fixed to disc & hard coating on body

Figure A.11 – Illustration of typical category B (triple offset) seat configurations

A.7.5.4.3. METALLIC COATING

A.7.5.4.3.1. Whenever AISI 410 is considered as disc material for category B butterfly valves, it shall be applied ENP coating on disc sealing surface.

A.7.5.4.3.2. On triple offset butterfly valves (category B), it shall be applied metallic coating on sealing surface (disc or body, depending on configuration as described in Figure A.11). In this case, the use of

[illegible]

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 56 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

A.7.5.5.2. DISC & SEAT CONFIGURATION

Table A.51 – Disc & Seat Configuration for butterfly valves

Config. #	Category (Ref. API 609)	Disc & Seat Configuration
0	Category A	Concentric, trim 1 (monel)
1	Category B	Double offset (bi-eccentric), soft-seated
2	Category B	Triple offset (tri-eccentric)
3	Category B	Double offset (bi-eccentric), metal-seated
4	Category A	Concentric, trim 2 (410)
5	Category B	Double offset (bi-eccentric), soft-seated, fire-tested
6	Category B	Triple offset (tri-eccentric), fire-tested
7	Category B	Double offset (bi-eccentric), metal-seated, fire-tested
8	Category A	Concentric, trim 3 (22 CR)
9	Category A	Concentric, trim 4 (NAB)
F	Category B	Double offset (bi-eccentric), soft-seated, fire-tested, fugitive emission
U	Category B	Triple offset (tri-eccentric), fire-tested, fugitive emission
G	Category B	Double offset (bi-eccentric), metal-seated, fire-tested, fugitive emission

A.7.6. NON-METALLIC VALVE

A.7.6.1. TYPICAL CONFIGURATION

A.7.6.1.1. MATERIAL CONFIGURATION

Table A.52 – Material configuration for non-metallic valves

Config. #	Material
01	PVC
02	CPVC
03	FRP

A.7.6.2. DESIGN REQUIREMENTS FOR NON-METALLIC VALVE

A.7.6.2.1. The design of non-metallic ball valve shall consider the minimum pressure – temperature rating as follows:

Table A.53 – Minimum pressure (psig) – temperature rating for non-metallic ball valves

Material	PVC		CPVC		FRP		
Temp.	DN (NPS)		DN (NPS)		DN (NPS)		
	1/2 up to 1 1/2	≥ 2	1/2 up to 1 1/2	≥ 2	1/2 up to 1 1/2	2 up to 3	4 up to 10
23°C	250	150	250	150	275	250	150
30°C	235	150	250	150	275	250	150
35°C	212	150	245	150	275	250	150
40°C	192	144	232	146	250	225	140
45°C	N/A		211	137	250	225	140
50°C			188	128	250	225	140
55°C			179	119	250	225	140
60°C			170	101	250	225	140

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 57 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

65°C		161	92	250	225	140
70°C		140	83	232	210	130
80°C		134	74	232	210	130

A.7.6.2.2. The design of non-metallic check valve shall consider the minimum pressure – temperature rating as follows:

Table A.54 – Minimum pressure (psig) – temperature rating for non-metallic check valves

Material	PVC	CPVC
Temp.		
23°C	150	150
30°C	150	150
35°C	150	150
40°C	144	146
45°C	N/A	137
50°C		128
55°C		119
60°C		110
65°C		101
70°C		92
75°C		83
80°C		74

A.7.6.2.3. The design of non-metallic butterfly valve shall consider the minimum pressure – temperature rating as follows:

Table A.55 – Minimum pressure (psig) – temperature rating for non-metallic butterfly valves

Material	PVC	CPVC
Temp.		
23°C	150	150
30°C	132	140
35°C	115	129
40°C	97	119
45°C	N/A	108
50°C		98
55°C		87
60°C		77
65°C		66
70°C		56
75°C		45
80°C		35

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 58 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

A.8. MATERIALS & FABRICATION

A.8.1. REQUIREMENTS FOR CASTING OF DUPLEX & SUPERDUPLEX

A.8.1.1. SCOPE

A.8.1.1.1. All valves made from stainless steel duplex and/or super duplex casting (UNS J92205, UNS J93404 and UNS J93380), without using bake sand foundry process, shall attend the minimum requirements listed herein for design, production, inspection, and acceptance.

A.8.1.1.2. The requirements listed herein are applicable for axial, ball, gate, globe and check type flanged valves, for all pressure classes, with NPS ≥ 2.

A.8.1.2. DOCUMENTATION

A.8.1.2.1. The Data Book of the valve shall contain all certificates related to all parts, according:

- a) chemical requirements;
- b) mechanical tests (tension, hardness and impact);
- c) metallurgic tests (resistance to localized corrosion and metallography for phase treatment counting and thermal treatment of the pilot casting);
- d) inspection reports (visual, using penetrant liquid and radiography);
- e) all thermal treatments;
- f) all WPS for defect repairing, approved by PETROBRAS or by a Classification Society indicated by PETROBRAS;
- g) welders qualification certificates, for repairs execution;
- h) cavity mapping, for bigger repairs of each part of the valve;
- i) welding report, for repairs of each part of the valve.

A.8.1.3. CHEMICAL REQUIREMENTS

A.8.1.3.1. The duplex steel used for manufacturing casting valves, for use in piping specifications B16, C16, E16, G16 or G16P, shall be in accordance with ASME SA-995 or ASTM A 995 Grade 4A (UNS J92205 or ACI CD3MN).

A.8.1.3.2. The super duplex steel used for manufacturing casting valves, for use in piping specifications B12, C12, H12, G12, G12P or J12, shall be in accordance with ASME SA-995 or ASTM A 995 Grade 5A (UNS J93404 or ACI CE3MN).

A.8.1.3.3. The super duplex steel used for manufacturing casting valves, for use in piping specifications B13 or C13, shall be in accordance with ASME SA-995 or ASTM A 995 Grade 6A (UNS J93380 or CD3MWCuN).

A.8.1.3.4. The representative sample of the chemical requirements of the valve shall be collected from the pouring ladle.

A.8.1.3.5. A representative sample for carbon, sulfur and nitrogen contents shall be collected from the furnace before pouring into the ladle.

A.8.1.3.6. The addition of Niobium to the cast shall be avoided. The maximum allowable content of Niobium

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 59 OF 86
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL
shall be 0,060% at the chemical requirements of the cast. A.8.1.3.7. Adding Aluminum to the run shall be avoided. The maximum allowable content of Aluminum to the final chemical requirements shall 0,030%. A.8.1.3.8. The levels of Nitrogen shall preferably be in the range of 0,20% up to 0,25%. A.8.1.3.9. All consumables for the welding process shall have certification of their chemical requirements guaranteeing maximum levels of Niobium of 0,060%. A.8.1.3.10. The chemical analysis of the elements shall be made in calibrated equipment according certified standards. A.8.1.3.11. Whenever more than one ladle is used for one mold, the metal founded in each ladle shall be in accordance with the chemical specifications for the required level. A.8.1.4. HEAT TREATMENT A.8.1.4.1. The procedure for solubilization heat treatment used to the super duplex steel casting valves shall be in accordance with ASME SA-995 or ASTM A 995 Grade 5A (UNS J93404 or ACI CE3MN) and Grade 6A (UNS J93380 or ACI CD3MWCuN). A.8.1.4.2. Solubilization heat treatment is the only acceptable treatment for production of the super duplex steel casting valves. A.8.1.4.3. The maximum number of solubilization heat treatments allowed for a single valve is limited to three (03) at foundry and one (01) at machining shop. If more heat treatments are needed, the manufacturer shall submit it for PETROBRAS approval. A.8.1.4.4. All heat treatments shall be monitored through thermocouples in the heat charge and in the furnace, and its register shall be inserted into the Data Book. A.8.1.4.5. Welding repair is not allowed before heat treatment. A.8.1.4.6. Whenever solubilization heat treatment is necessary after casting, it shall be performed in order to avoid distortions of the piece. It may be executed only one time. A.8.1.4.7. The soaking time depends on the prior experience of the manufacturer, and shall guarantee full solubilization of the inter-metallic phases and the precipitates through the thickest dimension of the piece without causing dimensional distortions. A.8.1.4.8. The pilot casting shall have possibility of extracting a test specimen for metallographic tests, which can be in any direction (longitudinal or transversal), representing a central session of the thickest part of the piece, according supplementary requirement S26.2 of ASTM A703, in order to verify the effectiveness and adjustment of the soaking time of the solubilization heat treatment. The results of this metallographic shall be part of the Data Book. A.8.1.4.9. The result of the metallographic test shall indicate absence of inter-metallic phases and undesired precipitates – notably, the sigma phase, carbides and nitrates – in a 200X magnification, as well as indicate a level of ferrite in the range of 35 to 65%, according ASTM E 562. A.8.1.4.10. For each casting with weight ≥ 300 kg, specimens for mechanical and metallurgical tests shall be attached, according ASTM A703. These test specimens shall remain attached to the casting until the last			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 60 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

thermal treatment. For pieces with weight < 300 kg, a test specimen per run is accepted.

A.8.1.5. MECHANICAL AND METALLURGICAL TESTS

A.8.1.5.1. The mechanical and metallurgical tests shall be done after the last the solubilization heat treatment, and before machining the casting.

A.8.1.5.2. The mechanical tests to be performed are tension, hardness and impact (Charpy-V) testing, according ASTM A370.

A.8.1.5.3. The test specimens shall be obtained from cast test blocks, according to ASTM A703. These blocks shall go through all the solubilization heat treatments before collecting the specimens for analysis.

A.8.1.5.4. One (01) test specimen shall be extracted for the tension test. The minimum acceptable values are according Table A.56 (ref. ASME SA-995 or ASTM A995).

Table A.56 – minimum values for tension tests

Grade	4A	5A	6A
UNS	J92205	J93404	J93380
Tensile Strength, ksi [Mpa] {kg/mm²}	90 [620] {63}	100 [690] {70}	100 [690] {70}
Yield Strength, ksi [Mpa] {kg/mm²}	60 [414] {42}	75 [515] {53}	65 [450] {46}
Elongation in 2" [50 mm], %	25	18	25

A.8.1.5.5. Three (03) test specimens shall be collected for the impact tests (Charpy-V). The tests shall be performed at a temperature of -46°C. The minimum values of absorbed energy shall be of 45J for an average of the three test specimens and 35J for each one of the test specimens.

A.8.1.5.6. The hardness tests shall be run on a test specimen collected from a test block, in a point representative of the central part of the thickest part of the casting, according to the supplementary requirement S26.2 of ASTM A703. The maximum hardness shall not be above 32 HRC (or 310 HB or 330 HV10), considering the average of three measurements. Castings with weight < 300 kg shall be tested individually and shall render specific hardness values less or equal to the pilot casting on the surface.

A.8.1.5.7. A test specimen shall be collected from the pilot casting, in order to perform the corrosion tests according ASTM G48 Method A. The test shall be run for 24 hours at a temperature of 50°C. The acceptance criteria shall be according to Grade 5A (UNS J93404 or CE3MN) and Grade 6A (UNS J93380 or CD3MWCuN):

- a) No pites located at 20 X magnification;
- b) Loss of mass less than 4,0 g/m².

A.8.1.5.8. The test to define the levels of ferrite shall be performed according to ASTM E562. The test specimen shall be collected from a cast test block connected to a casting that would represent a certain run. The acceptable range is 35 up to 55% of ferrite.

A.8.1.6. CASTING INSPECTION

A.8.1.6.1. VISUAL

A.8.1.6.1.1. Visual inspection shall be made on all castings before and after each solubilization heat

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 61 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
treatment, after pre-machining (whenever applicable) and the final machining. A.8.1.6.1.2. All accessible surfaces, internal and/or external, shall be visually examined, comparing acceptable discontinuities and superficial finishing according MSS SP-55 or comparison rules of Steel Casting Research and Trading Association (SCRATA) adopted in ASTM A802, or other standard considered equivalent by a set deal between the manufacturer and PETROBRAS. A.8.1.6.1.3. The levels of acceptance for visual inspections are set in ASTM A802, and are: a) level II, for non-machined surfaces; b) level III, for surfaces to be machined, as long as the machining completely eliminates the discontinuities. A.8.1.6.1.4. All castings that present, in one or more surfaces, independent of how serious or how extensive the defects are, or whether it allows repairs using welding or not, the following defects shall be considered UNACCEPTABLE: a) chaplet - discontinuity due to the incomplete fusion of the supports of chills and cores; b) shrinkage - cavity resulting from contraction while solidifying; c) shift - discontinuity due to displacement of contact edges of the molding boxes; d) misrun - insufficient foundered metal in the casting; e) shut metal - discontinuity due to the encounter of two currents of metal that have not been well mixed; f) veins - discontinuity due to movement or cracking of the sand mold; g) rat tail - depression on the surface of the piece caused by waves or failure in the mold surface; h) internal chills - discontinuity caused by incomplete fusion of devices used to increase the cooling rate in determined places. A.8.1.7. LIQUID PENETRANT INSPECTION (LPI) A.8.1.7.1. LPI shall be performed by Level 2 inspectors qualified by the “Sistema de Nacional de Qualificação e Certificação” (National System of Qualification and Certification) in Non-Destructive Testing (SNQC/END), or by another bureau according to ISO 9712 or EN 473. A.8.1.7.2. LPI shall be performed on every produced casting, on all accessible surfaces (internally and/or externally), after the final machining. All castings that make up the valves of the same order shall undergo inspection using Liquid penetrant. A.8.1.7.3. LPI shall be performed according to ASTM E165. A.8.1.7.4. indications shall be classified according to APPENDIX 8 (8-3) of ASME SEC VIII Div. 1. A.8.1.7.5. The acceptance criteria shall be according to ASME SEC VIII DIV 1 APPENDIX 7. A.8.1.8. RADIOGRAPHY OF VALVE PARTS AND PILOT CASTING A.8.1.8.1. radiographic inspection shall be executed by Level 2 inspectors qualified by the “Sistema de Nacional de Qualificação e Certificação” (National System of Qualification and Certification) in Non Destructive Testing (SNQC/END), or by certification according to ISO 9712 or EN 473. A.8.1.8.2. radiographic inspection shall be performed on the pilot casting (body, cap and shutter), after conclusion of heat treatment. For parts which pressure classes are 900 and above, it is mandatory to			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 62 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

perform radiographic inspection on 100% of the final pieces, in the critical regions defined in ASME B16.34.

A.8.1.8.3. radiographic inspection shall be performed according to ASTM E94 and ASTM E1030.

A.8.1.8.4. The list of parts to be radiographed and the acceptance criteria shall be according to ASME B16.34.

A.8.1.8.5. If all indications are classified as ACCEPTABLE, no other piece than the pilot casting shall be radiographed.

A.8.1.8.6. If one or more conditions were classified UNACCEPTABLE, the pilot casting shall be fixed or scrapped, a report shall be issued with causes analyses and solutions, and another piece shall be radiographed. If the second piece is approved, no more piece needs to be radiographed. If the second piece also presents UNACCEPTABLE indications, all pieces equal to the pilot casting of the order shall be radiographed in the areas rejected for the pilot casting and for the second casting. The second casting and the subsequent piece of the order shall be repaired whenever identified an unacceptable indication, otherwise it shall be rejected.

Table A.57 - maximum levels of severity by defect by thickness

Defects by Thickness	Thickness < 2"	2 ≤ Thickness < 4 1/2"	4 1/2" ≤ Thickness < 12"
Standards	ASTM E446	ASTM E186	ASTM E280
Porosity (A)	A2	A3	A3
Sand or Slag (B)	B3	B3	B3
Shrinkage Porosity (CA)	CA2	CA3	CA3
Shrinkage Porosity (CB)	CB3	CB3	CB3
Shrinkage Porosity (CC)	CC3	CC3	CC3
Shrinkage Porosity (CD)	CD3	-	-
Cracks (D)	None	None	None
Shrinkage Cracks (E)	None	None	None
Inserts (F)	None	None	None

A.8.1.9. ULTRASONIC INSPECTION

A.8.1.9.1. Ultrasonic inspection shall be executed by Level 2 inspectors qualified by the "Sistema de Nacional de Qualificação e Certificação" (National System of Qualification and Certification) in Non-Destructive Testing (SNQC/END), or by certification according to ISO 9712 or EN 473.

A.8.1.9.2. Ultrasonic inspection shall be performed according to ASTM A388 (forgings) and ASTM A609

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 63 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL
(castings). A.8.1.9.3. Acceptance criteria shall be according to ASME B16.34. A.8.1.10.REPAIRS A.8.1.10.1.All kind of repairs shall be made by welding. A.8.1.10.2.All repairs shall have a specific WPS approved by welding inspector level 2, according to type of equipment, and by a Classification Society indicated by PETROBRAS. This WPS shall be based on ASTM A488. A.8.1.10.3.The WPS and the qualification of the welder shall be according to acceptance criteria established in I-ET-3010.00-1200-955-P4X-001. A.8.1.10.4.The repair shall be witnessed by a Level I welding inspector. A.8.1.10.5.Before any repair, the surface shall be inspected by visual and preferably magnetic particle and liquid penetrant inspection. A.8.1.10.6.Twenty-four hours (for hydrogen diffusion) after the last welding repair, it shall be repeated the same NDT used to identify the defect. For extensions over 50 mm length and over 20% thickness depth a ultrasonic test or radiography shall be executed. Acceptance criteria shall be according to ASME B16.34. A.8.1.10.7.It is mandatory to perform post weld heat treatment for carbon steel or solubilization on stainless steel when: A.8.1.10.7.1. The repair is demanded after leaking in the hydrostatic test; A.8.1.10.7.2. The cavity after the repair preparation is over 20% of thickness depth or 25 mm, whichever is smaller; A.8.1.10.7.3. The extension (area) of the cavity is bigger than 65 cm². A.8.1.10.8.Test Specimens for Counter-Sample - Chemical Analysis and Mechanical Testing: the minimum period established for storage, by the foundry, of test specimens for sample are twelve (12) months. A.8.1.11.MACHINING A.8.1.11.1.The machining of the casting shall only be executed after heat treatment. A.8.1.11.2.No kind of machining may be done after hydrostatic test. A.8.1.11.3.Machined surfaces shall be according to valve design as tolerance and rugosity. A.8.1.11.4.No kind of metallurgical changing may occur caused by heating during machining. If necessary,			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 64 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
shall be a metallographic replica exam. A.8.1.11.5. Liquid penetrant on seal surface shall be ZERO defect. A.8.2. COATINGS A.8.2.1. METALLIC COATING A.8.2.1.1. ELECTROLESS NICKEL PLATING (ENP) A.8.2.1.1.1. Whenever specified in the VDS, it shall be applied on the indicated parts an ENP coating obtained by chemical reactions leading to a plating composed of 90% Nickel and 10% Phosphorus. This coating shall be in accordance with ASTM B 733 attending classification SC4, Type V, heat treatment Class 2. A.8.2.1.1.2. The minimum thickness of the ENP coating shall be 0,003 inch (75 µm). A.8.2.1.1.3. All components shall be traceable for the details of the coating procedure, coating conditions and date of application. A.8.2.1.1.4. The manufacturer shall issue inspection certificates of the ENP coating, and each certificate shall identify the plant where the treatment is performed and the history of the process. Also, it shall list all serial numbers of the parts coated together with the material grades and the overall geometry of those parts. A.8.2.1.2. COBALT-CHROMIUM (Co-Cr) WELD OVERLAY A.8.2.1.2.1. Whenever specified in the VDS the term Stellite, it shall be applied a weld overlay of cobalt-chromium (Co-Cr) alloy on indicated parts. A.8.2.1.2.2. The specification of the cobalt-chromium (Co-Cr) alloy shall fulfil the requirements of the design standard indicated in the VDS. A.8.2.1.2.3. For valves with DN < 2, which is not possible to apply cobalt-chromium (Co-Cr) weld overlay, the manufacturer shall consider to use integral parts of cobalt-chromium (Co-Cr) alloy. A.8.2.1.2.4. For the parts which materials are made of solid cobalt-chromium (Co-Cr) alloy there is no need to apply an overlay. A.8.2.1.3. STAINLESS STEEL (AISI 316) WELD OVERLAY A.8.2.1.3.1. Whenever specified in the VDS, it shall be applied a minimum of 3,0 mm thick weld overlay in stainless steel grade 316L on seat pockets and stem seal contact faces on the body. A.8.2.1.3.2. For floating ball valves, this requirement is not applicable to the seat pockets as soon as the seat ring is made of an integral, solid thermoplastic material (i.e.: valves having a fixed seat), but it applies to stem sealing areas in all cases (for floating ball valves having also a floating seat design, the seat-to-body sealing area shall consequently be overlaid). A.8.2.1.3.3. For valves with DN < 2, which is not possible to apply stainless steel weld overlay, the manufacturer shall consider using integral parts of stainless steel or CRA alloy. A.8.2.1.3.4. For the parts which materials are made of stainless steel, duplex, super duplex or solid Alloy			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 65 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

625 there is no need to apply an overlay.

A.8.2.1.3.5. Dilution on welded surface shall not exceed 10% of base metal.

A.8.2.1.4. NICKEL ALLOY (INCONEL 625) WELD OVERLAY

A.8.2.1.4.1. Whenever specified in the VDS the term Alloy 625, it shall be applied a weld overlay of a nickel alloy UNS N06625 on indicated parts.

A.8.2.1.4.2. Whenever specified in the VDS full clad, it shall be applied a weld overlay of Nickel Alloy (Alloy 625) Weld Overlay on all wetted parts, including flange facings up to the outside diameter of all valve flanges.

A.8.2.1.4.3. The areas of such parts that shall be welded are indicated in the VDS. The manufacturer shall attend to the requirement of partial or full cladding.

A.8.2.1.4.4. The weld overlay thickness shall be sufficient in order to obtain a minimum of 3,0 mm thick protective layer in the final machined condition.

A.8.2.1.4.5. For valves with DN < 2, which is not possible to apply Alloy 625 weld overlay, the manufacturer shall consider to use integral parts of Alloy 625.

A.8.2.1.4.6. For the parts which materials are made of solid Alloy 625 there is no need to apply an overlay.

A.8.2.1.4.7. Dilution on welded surface shall not exceed 10% of base metal.

A.8.2.2. HARD COATING

A.8.2.2.1. CHROMIUM ELECTROPLATE

A.8.2.2.1.1. Whenever specified hard coating in the VDS, a hard coating of chromium electroplate may be applied on the indicated parts of a metal-to-metal ball valve, as described in Table A.33.

A.8.2.2.2. CHROME CARBIDE

A.8.2.2.2.1. Whenever specified hard coating in the VDS, a hard coating of chrome carbide may be applied on the indicated parts.

A.8.2.2.2.2. When applicable, hard coating of chrome carbide shall be applied by High Velocity Oxy-Fuel (HVOF) process.

A.8.2.2.2.3. The hard coating of chrome carbide shall achieve a minimum thickness of 200 µm after grinding and lapping.

A.8.2.2.2.4. The hard coating shall be carefully applied and inspected to ensure that the finish is smooth, fine grained, adherent, and free from blisters, pits, nodules, indication of burning, edge buildup, and other defects.

A.8.2.2.2.5. The hard Coating thickness shall be measured to confirm the results of it against the specified thickness.

A.8.2.2.3. TUNGSTEN CARBIDE

A.8.2.2.3.1. Whenever specified hard coating in the VDS, a hard coating of tungsten carbide may be applied on the indicated parts.

A.8.2.2.3.2. When applicable, hard coating of tungsten carbide shall be applied by High Velocity Oxy-

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 66 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

Fuel (HVOF) process.

A.8.2.2.3.3. The hard coating of tungsten carbide shall achieve a minimum thickness of 200 µm after grinding and lapping.

A.8.2.2.3.4. The hard coating shall be carefully applied and inspected to ensure that the finish is smooth, fine grained, adherent, and free from blisters, pits, nodules, indication of burning, edge buildup, and other defects.

A.8.2.2.3.5. The hard coating thickness shall be measured to confirm the results of it against the specified thickness.

A.8.2.2.4. CHROME-NICKEL SPRAY AND FUSE

A.8.2.2.4.1. Whenever specified hard coating in the VDS, a hard coating of chrome-nickel basis with metallurgical bonding may be applied on the indicated parts.

A.8.2.2.4.2. When applicable, hard coating of chrome-nickel basis with metallurgical bonding shall be applied by Flame Spray and Fuse process.

A.8.2.2.4.3. The hard coating of chrome-nickel spray and fuse shall achieve a minimum thickness of 500 µm after grinding and lapping.

A.8.2.2.4.4. The hard coating shall be carefully applied and inspected to ensure that the finish is smooth, fine grained, adherent, and free from blisters, pits, nodules, indication of burning, edge buildup, and other defects.

A.8.2.2.4.5. The hard Coating thickness shall be measured to confirm the results of it against the specified thickness.

A.8.2.3. NON-METALLIC COATING

A.8.2.3.1. ORGANIC COATING

A.8.2.3.1.1. The use of valves with organic coating may be considered as option for specific service applications, such as with seawater service.

A.8.2.3.1.2. Whenever applicable, the pipe specification (*spec*) may present an organic coated valve code as an option.

A.8.2.3.1.3. Only ball, gate and globe valve types classified as VSL-1 and VSL-2 may consider the use of organic coating.

A.8.2.3.1.4. The VDS of organic coated valve shall indicate/allow, as principle, the application of organic coating only in the body/closure material of the valve.

A.8.2.3.1.5. For small size valves (e.g.: NPS < 3), when organic coating is not applicable, the body may be made of a material with the same corrosion resistance of the materials specified for the internals.

A.8.2.3.1.6. The specification of the organic coating shall be according to Annex F of this document.

A.8.2.3.1.7. RTJ flanges may be organic coated, except the ring groove which shall attend the orientation

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 67 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
indicated in the pipe specification (<i>spec</i>). A.8.2.3.2. POLYAMIDE (PA) COATING A.8.2.3.2.1. The use of valves with polyamide (PA) coating is no longer considered as option for specific service applications, such as with seawater service. A.8.2.3.2.2. Superduplex is now used instead of polyamide coating. A.8.2.3.2.3. Only concentric butterfly valves (Category A) classified as VSL-1 were considered to use of polyamide (PA) coating, but the damage of the coating is the reason for the substitution of polyamide coating to superduplex. A.8.2.3.2.4. The stem shall be in superduplex for butterfly valves category A with disc in superduplex. A.8.3. ALTERNATIVE MATERIALS A.8.3.1. All materials listed in the VDS shall be considered as standardized materials for valve parts, but are not exclusive solutions. Therefore, the valve manufacturer may propose alternative materials (equivalent or better), conditioned to PETROBRAS approval. A.8.3.2. For a material to be accepted as equivalent or better, it shall have the same or better mechanical (i.e. yield strength, hardness, etc.) and anti-corrosive properties (measured by PREN), be suitable for temperature range presented in the VDS whilst not being susceptible to phenomenon such as brittle fracture or stress corrosion cracking. A.8.3.3. Charpy impact testing is required for all materials, considering minimum temperature listed in ASME B31.3, section 323 or as listed in the VDS, whichever is lower. All metallic materials shall be suitable for minimum temperature service of -29°C. A.8.3.4. Some examples of alternative materials are: A.8.3.4.1. For pressure-containing parts, forging materials are acceptable in place of casting materials, but not vice-versa. A.8.3.4.2. For remaining internal parts (i.e.: non pressure-containing), forgings and castings are interchangeable as long as they have the same desired properties (i.e.: mechanical properties, corrosion resistance, maximum or minimum hardness, and other properties as applicable). A.8.3.4.3. Superduplex (UNS S32760) may be used as replacement for duplex (UNS S31803), but not vice-versa. A.8.3.4.4. Superduplex and duplex steels shall not be used for chlorinated seawater services (SW). A.8.3.4.5. Nickel Aluminum Bronze (UNS C95800) may be used as replacement for bronze B62 (UNS C83600), but not vice-versa. A.8.3.4.6. Higher mechanical strength alloys such as ASTM A694 F60 or ASTM A694 F65 (see A.6.1.3.3.) are acceptable instead of ASTM A105 or ASTM A216 Gr WCB. For Nickel-based alloy clad valves used for sour service, the base material shall be NACE compliant. A.8.3.4.7. Austenitic steels with PREN number less than that of 316/316L shall not be used on offshore			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 68 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
facilities (e.g.: AISI 304 and AISI 304L stainless steel materials shall not be used). A.8.3.4.8. Internal parts made of martensitic stainless steels (e.g.: AISI 410) may be replaced by higher chromium alloys such as ASTM A564 Gr 630 H1150 (17-4PH), superduplex or duplex steels. A.8.3.4.9. ASTM A350 LF3 may be replaced with ASTM A350 LF2 CL1, in case minimum temperature is above - 46°C. A.8.3.4.10. Internal parts made of austenitic stainless steels may be replaced with higher chromium alloys, if low temperature requirements are satisfied: a) Down to - 46°C: ASTM A350 LF2 CL1 with 3 mm of Alloy 625 overlay or ASTM A564 Gr 630 H1150 (17-4PH); b) Down to - 51°C: Duplex (UNS S31803) or Superduplex (UNS S32760); c) Down to - 100°C: ASTM A350 LF3 with 3 mm of Alloy 625 overlay, ASTM A522 type I with 3 mm of alloy 625 overlay or full inconel parts. A.8.3.4.11. Low temperature carbon steel parts (i.e.: ASTM A350 LF2, ASTM A350 LF3) may be used in lieu of regular carbon steel parts (e.g.: ASTM A105, ASTM A216 WCB). A.8.4. DRAIN, VENTS AND INJECTION CONNECTIONS A.8.4.1.1. For welded plugs the material shall be the same grade as the body. A.8.4.1.2. For non-welded removable plugs the material shall be the same material as the trim, minimum SS316L. A.8.4.1.3. To prevent galling, threads shall be coated with silver plate. A.8.4.1.4. Drains, vents, and injection connections shall comply with IOGP S 562. A.9. INSPECTION & TESTING A.9.1. INSPECTION REQUIREMENTS A.9.1.1. INSPECTION AND TESTING PLAN (ITP) A.9.1.1.1. The ITP shall be issued by the supplier and submitted to PETROBRAS or EPC contractor approval. A.9.1.1.2. The ITP shall allow the identification of stages, through the valve production cycle, where it shall be done checks or inspections, including those carried out by material or service suppliers. A.9.1.1.3. The ITP shall indicate the types of examinations, tests or checks to be made, as well as procedures and/or applicable instructions, acceptance criteria and issued records. A.9.1.1.4. The ITP shall contain register of critical quotas as defined by the manufacturer, including, at least, standardized quotas in the construction and design standards of valves. A.9.1.1.5. The ITP shall contain the procedures and instructions for inspection of all expected activities. A.9.1.1.6. The inspection shall be performed by PETROBRAS or EPC contractor. A.9.1.2. RECEIVING INSPECTION A.9.1.2.1. The receiving inspection shall be performed without causing damages to the package and			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B	
	MARLIM LESTE E SUL		SHEET: 70 OF 86	
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP	INTERNAL

A.9.1.3.5. STAINLESS STEEL DUPLEX AND SUPER DUPLEX VALVES:

a)

100% visual inspection;

b)

for body and bonnet made of forgings, pressure class 150 and 300, liquid penetrant inspection is required at least in 20% of each batch material;

c)

for body and bonnet made of forgings, pressure class 900, 1500, 2500 and above, liquid penetrant inspection is required in 100% of each batch material;

d)

for body and bonnet made of casting, pressure class 900, 1500, 2500 and above, radiographic examination is required in 100% in critical areas.

A.9.1.3.6. Additional Requirements:

a)

all valves specified for hydrogen sulfide service shall be in strict accordance with the requirements of the ISO 15156;

b)

visual inspection shall be according to ASME BPV section V. The acceptance criteria shall be according to MSS SP-55 specification;

c)

liquid penetrant and magnetic particles testing shall be according to ASME BPV section V. The acceptance criteria shall be according to ASME B16.34 specification for class pressure up to 600#. For higher class pressures the acceptance criteria shall be according to ASME B16.4, with the exception that no linear indication shall be accepted;

d)

visual inspection shall be according to ASME BPV section V. The acceptance criteria shall be according to ASME B16.34 specification;

e)

radiographic examination shall be according to ASME BPV section V and ASTM E94. The acceptance criteria shall be according to ASME B16.34 specification;

f)

for castings valves NDT examinations shall focus on critical areas.

A.9.2. DESIGN VALIDATION

A.9.2.1. The design validation of a valve is requested according its VSL classification, as presented as follows:

Table A.59 – Design validation requirements according VSL classification

VSL Classification	VSL-1	VSL-2	VSL-3	VSL-4
Design Validation	No	Design analytical approval	Design validation test approval (PVT)	

A.9.2.2. For VSL-1 valves, no design validation is required. In this case, the manufacturer shall perform the design and manufacture the valve attending all requirements listed in the applicable standards (e.g.: API 6D, API 6A, etc.).

A.9.2.3. For VSL-2 valves, design validation is required at documentation level. In this case, the manufacturer shall have an analytical approval of the valve design. To attend this kind of design validation, the manufacturer shall submit for PETROBRAS approval:

a)

Certificate of approval, issued by a 3rd party, referred to an analytical approval of the valve design, according normative requirements (e.g.: NBR 15827, API 6D, API 6A, API 600, API 609, etc.); or

b)

A valid API monogram of the valve design, complying to all normative requirements of quality and design.

NOTE: In case the manufacturer has already performed a PVT test in the past on a representative prototype of the valve design or on a valve which scaling may be considered valid, the requirement of design analytical approval may

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 71 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

be demonstrated by the certificate of approval. This certificate, referred to the execution to this PVT test, shall be issued by a 3rd party.

A.9.2.4. For VSL-3 and VSL-4 valves, design validation is required at PVT test execution level. In this case, the manufacturer shall perform all PVT tests on a representative prototype of the valve that will be supplied.

NOTE: The manufacturer is free of charge on performing the PVT test, in case it is presented a certificate of approval, issued by 3rd party, referred on a PVT test performed in the past, on a representative prototype of the valve that will be supplied or on a valve which scaling may be considered valid.

A.9.2.5. In the case of PVT test execution, the following Standards may be considered to the test:

- NBR 15827; or
- API 6A, considering PSL 3G, PR2 (Appendix F); or
- API 6AV1.

NOTE: In case of missing technical requirements, including acceptance criteria (e.g.: ball valve on API 6A), the PVT test procedure shall be elaborated from better suited standards such as NBR 15827, and submitted to PETROBRAS approval.

A.9.2.6. For a supply of a fire tested valve, the manufacturer shall also present a certificate of approval, issued by 3rd party, complying to ISO 10497.

A.9.2.7. For a supply of a fugitive emissions valve, the manufacturer shall also present a certificate of approval, issued by 3rd party, complying to ISO 15848.

A.9.3. FACTORY ACCEPTANCE TEST (FAT) REQUIREMENTS

A.9.3.1. TEST MEDIUM

A.9.3.1.1. The manufacturer shall consider the use of the following test medium:

A.9.3.1.1.1. For all tests with liquid: It shall be used fresh water with an addition of corrosion inhibitor.

NOTE: The chloride content of test water in contact with austenitic and duplex stainless steel wetted components of valves shall not exceed 30 µg/g (30 ppm by mass) and the water temperature shall not be greater than 38°C (100°F) during the testing period.

A.9.3.1.1.2. For high pressure gas tests: It shall be used dry nitrogen (N₂).

A.9.3.1.1.3. For low pressure gast tests: It may be used dry air or nitrogen (N₂).

A.9.3.2. TEST BENCH

A.9.3.2.1. The manufacturer shall attend all requirements herein stated for the design and assembly of the test bench dedicated to perform the FAT tests of the valve / actuator.

A.9.3.2.2. It shall be considered, as minimum, the use of the following equipment:

- Test Panel with devices for manual and automatic operation, provided of pressure transmitters, digital indicators or controllers, pressure meters, solenoid valves, relays, end-of-stroke indicators, cycles counter, etc., as well as hydraulic systems (hydraulic units, etc.) compatible with the flows and test pressure levels for the valve / actuator which will be tested.
- Fittings and tubing of stainless steel.
- High pressure hoses.

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 72 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
d) Torque tool. e) Data acquisition system, with capacity to adequately record the values of pressure and / or torque during test execution. A.9.3.2.3. The manufacturer shall take attention to the adequacy of protection for personnel carrying out the testing, in the event of failure of a valve, connection or equipment during the test. Additional caution shall be taken whenever high pressure gas tests are required. A.9.3.3. MONITORING PORTS FOR ACTUATED VALVES A.9.3.3.1. During execution of any valve cycle, the following pressure ports shall be monitored / registered: a) Valve upstream pressure b) Valve downstream pressure c) Valve body pressure d) Actuator input (e.g.: hydraulic or pneumatic pressure, electric current) e) Valve stroke A.9.3.4. LEAKAGE IDENTIFICATION A.9.3.4.1. The test bench shall have the capacity to monitor eventual leakages and allow to measure the volume in order to allow verification of the acceptance criteria. A.9.3.4.2. Hydraulic lines must be, whenever technically possible, built with short stainless steel tubing, to increase the sensitivity to leakage detection. With the same purpose a procedure for purging the air of the valve body, the actuator and the test panel must be foreseen. This procedure shall be approved by PETROBRAS. A.9.3.4.3. During sealing tests with liquid, whenever visual observation of leakage in a direct way is not possible, leakages can be monitored by pressure variation. A.9.3.4.4. In case of leakage identification by pressure variation, one example of a method of quantifying sensitivity of the test bench would be the creation of a “leakage”, small and controlled, where the leaked volume variation would be co-related with the pressure drop generated by this “leakage”, for each test condition (pressure value, upstream lines, downstream, ambient temperature, etc.). A.9.3.4.5. Detection of a leakage shall be associated with the identification of a continuous pressure variation, without occurring its stabilization along the time and since the effects of temperature variation can be disregarded (or compensated). Thus, the pressure drop in an upstream line or pressure rise in a downstream line , without stabilization of these pressure variations shall be considered as leakage. A.9.3.4.6. In case of leakage identification by using level variation in a capillary, its diameter shall be compatible with the capacity of identifying small leakages / volumes. A.9.3.4.7. Pneumatic shell test shall be performed using inert gas, such as mixture of 99 % nitrogen with a 1 % helium, tracer measured using a mass spectrometer, in order to guarantee leakage detection. Alternatively, if nitrogen (100%) is used as test medium, the valve shall be submerged. A.9.3.4.8. In case of monitoring gas leakage at the pressure ports, for higher and constant leakages it shall			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 73 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

be considered the use of flowmeters operating inside 20% to 80% of the nominal capacity of it.

A.9.3.4.9. For monitoring gas leakage on pressure ports for smaller or inconstant leakages it shall be performed by using scale burette where a flexible hose is inserted totally on a burette (or at least above the meniscus) and the set is submerged on a transparent aquarium filled with clean water. Monitoring of leakage shall be done by registering the displacement of the meniscus line inside the burette, which can be seen through the aquarium.

A.9.3.4.10. Before each type of test, the manufacturer shall present the test bench set-up in order to demonstrate that it is assembled on a correct way to perform the tests and monitor eventual leakages. The following items shall be concerned during this presentation:

a)

It shall be verified that the pressure source is connected to the correct pressure port.

b)

It shall be verified that all test devices are properly assembled, such as if flanges and fittings are tightened, check of instrumentation valves position (fully opened or fully closed), identification of hoses (which shall be in a good shape, without creases, holes or tears), etc.;

c)

Before gas tests, if the valve is completely purged.

d)

Check of safety rules appliance, prior to beginning the tests.

A.9.3.5. FAT SEQUENCE

A.9.3.5.1. All manual and actuated valves shall be subjected to a Factory Acceptance Test (FAT) prior to delivery and/or shipping the valve.

A.9.3.5.2. It shall be considered the execution of FAT for the valve and its actuator.

A.9.3.5.3. Otherwise agreed, the FAT shall be performed with the actuator assembled onto the valve.

A.9.3.5.4. A functional test of valve + actuator shall be considered in order to guarantee adequate performance of the set.

A.9.3.5.5. Valves wich design contains fugitive emissions requirement shall also perform additional FAT tests according to item A.9.3.6.

A.9.3.5.6. HIPPS valves shall also perform additional FAT tests according to item A.9.3.7.

A.9.3.5.7. Any conflict between contract requirements and this document shall be presented for PETROBRAS evaluation.

A.9.3.5.8. The FAT of bronze globe valves shall follow MS SP-80. The FAT of other globe valves shall follow BS 1873 / BS 12266 or API 623 requirements, as applicable, and applicable tests listed in these Standards shall be performed.

A.9.3.5.9. The FAT of butterfly valves (except to the triple offset design) shall follow API 609 / API 598 requirements, and applicable tests listed in these Standards shall be performed, including the optional high-pressure closure test.

A.9.3.5.10. The FAT of ball, gate, check, plug, axial and triple offset butterfly valves shall be as bellow. The FAT of ball and gate valves complying with IOGP S-562 and S-611 shall be according to A.7.1.8 and A.7.2.5,

 PETROBRAS	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001		REV. B
	MARLIM LESTE E SUL				SHEET: 74 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE				ESUP
					INTERNAL

repectively.

A.9.3.5.10.1. Pressure tests according the respective QSL requirement for each VSL classification:

Table A.60 – QSL / PSL requirement according VSL classification

VSL Requirements	VSL-1	VSL-2 (not for hydrocarbon)	VSL-2 (with hydrocarbon)	VSL-3	VSL-4
QSL (According API 6D)	QSL-2	QSL-2	QSL-3	QSL-3	QSL-4
PSL (According API 6A)	NA	PSL-3 or PSL-3G as applicable	PSL-3 or PSL-3G as applicable	PSL-4	PSL-4

a) For VSL-1 valves, it shall be performed pressure tests according to API 6D QSL-2 requirements.

b) For VSL-2 valves, it shall be performed pressure tests according to API 6D QSL-3 requirements. For liquid service application, it shall be performed pressure tests according to API 6D QSL-2 requirements.

c) For VSL-3 valves, it shall be performed pressure tests according to API 6D QSL-3 requirements.

d) For VSL-4 valves, it shall be performed pressure tests according to API 6D QSL-4 requirements.

A.9.3.5.10.2. In addition to the pressure tests required by Table A.60, the FAT of ball valves shall consider the execution of the following supplementary tests listed in Annex H of API 6D: H.5, H.6, H.7, H.8, H.9, H.11.

NOTE: Otherwise agreed, the supplementary tests H.9 and H.11 shall be performed using gas as test medium.

A.9.3.5.10.3. The acceptable leakage rate for the tests shall be according to API 6D, except to:

a) Hydrostatic seat test and low-pressure gas seat test of metal seated valves: the acceptable leakage shall be ISO 5208 Rate B. For DBB tests the acceptable leakage is 2 X B.

b) High-pressure gas seat test of metal seated valves: the acceptable leakage rate shall be 2 X C (two times ISO 5208 Rate C). For DBB tests the acceptable leakage is 4 X C.

NOTE: Whenever DBB feature is required for the valve design at closed or closed & opened position, it shall be considered the execution of DBB test on both conditions.

c) Triple offset butterfly valves: The acceptable leakage rate for all HP/LP sealing (i.e.: seat) tests shall be ISO 5208 Rate A.

A.9.3.5.10.4. Prior to perform the drive train strength test, listed in item H.7 of API 6D, the manufacturer shall provide the following information:

a) Drive train engineering data (i.e.: stem calculation), demonstrating that the design thrust or torque for all drive train calculations is at least two times the breakaway thrust or torque of the valve (i.e.: maximum thrust or torque required to operate a valve at maximum pressure differential).

b) Actuator engineering data (e.g.: gearbox, hydraulic, etc.), demonstrating that proper safety factor has been taken into account.

c) Test fixture design data, in order to guarantee that the test fixture used to block the obturator is able to withstand the loads of the test and it would not damage the surface of the parts in contact (i.e.: ball / seats edges, sealing region).

d) The selected torque value (acc. item H.7 of API 6D) that will be applied on the drive train strength test. If the valve actuator (e.g.: gearbox, hydraulic, etc.) is used to generate the torque test, it shall be checked the values of maximum output torque of the actuator and the selected torque value for the test, in order to confirm its compatibility.

NOTE: The drive train strength test shall be performed prior to the sealing tests (i.e.: seat test) and it may be done in only one valve of the lot, per nominal, per actuator type (e.g.: gearbox, hydraulic, etc.), and per pressure class, conditioned to:

- Agreement by test inspector of all documentation listed in this item.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 75 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

- No failures on the drive train strength tests. If one valve of the lot failures on the drive train strength, the other valves with same design premise shall perform the test.

A.9.3.6. FUGITIVE EMISSIONS FAT

A.9.3.6.1. Whenever specified in the VDS that the valve shall be fugitive emissions approved, a minimum of one valve of the lot shall be selected at random from each production lot of valves per valve type, pressure class and nominal size, and tested according to ISO 15848 Part 2.

A.9.3.6.2. The manufacturer shall prepare specific Factory Acceptance Test (FAT) procedure, according to ISO 15848 Part 2, and submit for PETROBRAS approval.

A.9.3.6.3. The "Tightness Class" shall be according:

Table A.61 – Tightness class for stem seals - fugitive emissions (ref.: ISO 15848 Part 1)

Tightness Class (Stem seals)	Measured Leak Rate ¹
A	≤ 50
B	≤ 100
C	≤ 1000

¹ Expressed in ppmv measured with the sniffing method as defined in ISO 15848 Part 1 - Annex B (1 ppmv = 1 ml/m³ = 1 cm³/m³)

Table A.62 – Tightness class for body seals - fugitive emissions (ref.: ISO 15848 Part 1)

Measured concentration (Body seals)	≤ 50 ¹

¹ Expressed in ppmv measured with the sniffing method as defined in ISO 15848 Part 1 - Annex B (1 ppmv = 1 ml/m³ = 1 cm³/m³)

A.9.3.6.4. The FAT report shall be according to item 7 of ISO 15848 Part 1.

A.9.3.6.5. Valves shall comply with stem tightness class BH.

A.9.3.7. HIPPS VALVE IN PLACE TEST

A.9.3.7.1. All HIPPS valves shall be able to pass through a regular testing to demonstrate correct function and monitoring operating status. The test interval shall be consistent with the basis of the SIL analysis.

A.9.3.7.2. Following are the minimum considerations that shall be verified during in place test of a HIPPS valve:

- Regular Pressure/Leak Integrity Testing: The HIPPS shall be capable of demonstrating that the system has sufficient integrity to contain SIP with leakage less than the maximum leak rate. Testing interval will be determined by SIL rating or regulatory requirement.
- Maximum Leak Rate Testing: The HIPPS design shall include appropriate methods to measure or infer the leak rate of the HIPPS for comparison to the predetermined maximum leak rate. Maximum leak rate determination shall consider both short-term shutdown events and long-term shutdown events such as a storm shut-in and shall either be set by the operator or by regulatory requirement.
- Partial Stroke Testing (PST): Each valve shall be supplied with a dedicated Partial Stroke Test (PST) system installed inside the local control valve cabinet. Required Partial Stroke Test shall be implemented using devices specifically designed and certified for that purpose. PST shall be considered as a functional test which covers only a fraction of the possible failures, and not as self-test with diagnostic coverage. The fraction detected shall be properly documented. As minimum, the following tests shall be scope of the PST:
 - 4 actuations of HIPPS valves under operational condition, with nominal line pressure in upstream, downstream and body cavity;

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 76 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

- 4 actuations of HIPPS valves under DBB condition, direction open to close. In this case the valve should be at opened position, with nominal line pressure in the bore and without pressure in the cavity;
- 4 actuations of HIPPS valves under DBB condition, direction close to open. In this case the valve should be at closed position, with nominal line pressure in upstream and downstream, and without pressure in the cavity;
- For the FAT tests of the valve HIPPS, the sequence described herein shall be done considering the line pressure of 0% PMT, 50% PMT and 100% PMT.

NOTE: The results of the PST shall be registered using a statistical analysis (i.e.: average, standard deviation), in order to serve as a reference for the commissioning test and periodical test. Also, a failure mode effects and criticality analysis (e.g.: FMECA) shall be considered to be used.

A.10. HANDLING, STORING & SHIPPING

The manufacturer shall present a tested/validated procedure by laboratory performance for the preservation system and a procedure with handling, storing, packaging and shipping the valve (including actuator and positioner – electric/electronic parts).

After hydrostatic test, all valves shall be purged with dry compressed air, in the fully open position, until they are completely dry.

After purge, the valve shall be kept closed or opened, according to manufacturer instruction, inner protected with VCI for all the parts and no corrosion protector that will need any solvent to be removed may be used.

Valves with corrosion resistant materials needs the corrosion inhibitor for liquid and vapor phase added on the water, but do not need the use of VCI. Corrosion protector that will need any solvent to be removed shall not be used.

Valves made of brass, stainless steel and other non-oxidizable metal alloys shall receive protection against dust and moisture.

Small sized valves may be shipped inside a collective package. Even that, each valve shall be individually package prior to assembly the collective package.

Medium valves shall have an individual package.

Large valves shall be packed limited to their nozzles considering that they are protected by the painting.

The valves may be packed on upright or horizontal position, on open or closed position, according to manufacturer recommendation.

A.11. DOCUMENTATION

A.11.1. DOCUMENTATION FORMATS & QUALITY

A.11.1.1.Whenever is possible (e.g.: a supply from a Brazilian manufacturer) all documentation shall be delivered in Portuguese (pt-BR). An alternative language to be considered for the documentation shall be English (e.g.: supply from an international manufacturer). Any deviation shall be requested and approved by PETROBRAS in advance of the delivery.

A.11.1.2.Typically, the format for the documents shall be Adobe Acrobat PDF (*.PDF). Other formats shall

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 77 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
be agreed with PETROBRAS. A.11.1.3.All documentation shall be of good quality with maximum legibility. Scanned images shall be checked before submittal for proper image quality, skewness and completeness. A.11.2. DATA BOOK A.11.2.1.The Data Book shall be filled in a manner which will facilitate rapid retrieval of information. They shall be made available to PETROBRAS, if required, for at least 5 years following the commencement of the guarantee period of last batch commercialized. A.11.2.2.The Data Book shall represent the manufacturer's compilation of calculations together with the necessary drawings, manufacturing, testing and inspection procedures, certificates, personnel qualifications, non-conformance reports, records and reports required to demonstrate that the valve and actuator is in compliance with PETROBRAS’s requirements. A.11.2.3.It shall include, as minimum: a) Material certificates of compliance; b) ITP copy approved by PETROBRAS or EPC purchaser; c) Copy of all reports issued by the company responsible for inspection; d) WPS and WPQR for structural welding; e) Repair weld maps; f) NDT reports with lists of welder and NDT operator qualifications and procedures, and drawings of critical areas for NDT; g) Relevant fabrication drawings; h) Reports of non-compliance and corrective actions taken; i) FAT procedure and test results. j) Actuator certificate; k) Positioner certificate; l) Fire-test certificate, when applicable; m) Fugitive emission certificate, when applicable; n) Inspection final report for shipment. A.11.2.4.The issue of certificates shall be according EN 10204 type 2.2 for parts with no risk for environment as: hard welding deposit, closures, seal, springs and so on. A.11.2.5.The issue of certificates shall be according EN 10204 type 3.1 for parts with risk for environment as: body, bonnet, cover, stem, studs/bolts, etc. A.11.2.6.The Data Book shall be issued one per valve or one per purchase order (with traceability for valves groups). One hard copy of the Data Book shall be sent with the valve to final destination and an electronic copy shall be sent to the PURCHASER. A.11.2.7.All material certificates shall be identified with: valve serial number, project name (when applicable), purchase order number, order item number, VDS number or project number. A.11.3. USER MANUAL A.11.3.1.The User Manual shall in an organized manner, give sufficient information in order to enable operation and maintenance of the valve in a safe, economical and functionally correct manner during all			

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 78 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

phases after installation.

A.11.3.2.The User Manual shall cover valve and actuator.

A.11.3.3.All documents shall be updated to "as-built".

A.11.4. DOCUMENTATION OF PRESERVATION, PROTECTION AND PACKING

A.11.4.1.The manufacturer shall prepare and submit procedure(s) for PETROBRAS approval, showing the following:

b) description of the initial preservation/protection/packing carried out by the manufacturer prior to shipment:

- The procedure shall also specify type of preservatives/ lubricants used, with technical data, handling and safety instructions, especially giving details of any chemical substances used that may be hazardous to personnel or environment.

c) description of re-preservation after incoming inspection at end destination:

- Preservation maintenance is to be carried out by the user during storage, installation and in the period prior to start-up for the intended use.

d) unpacking and removal of protective devices and preservatives prior to operation:

- The procedure shall indicate the proposed lifting methods for the valve and actuator, and all additional measures that shall be observed prior to and during installation.

A.11.4.2.The documentation of preservation, protection and packing shall fulfill all requirements stated on item A.5.

A.11.5. VALVE CODE

A.11.5.1.DESCRPTION

A.11.5.1.1.All valves specified for application in Exploration and Production (E&P) oil production and process facilities have a unique code, in order to have uniformity and to systematize the coding of valves so that they can be handled in an organized manner and information can be easily retrieved.

A.11.5.1.2.The complete structure of all valve codes shall be as follows (some exemptions may occur):

LLL-A-B-LCDE

TRIM design

Obturator type

Body material

Material Class

VSL

Pressure rating

Valve type

A.11.5.2.BASIC STRUCTURE OF A VALVE CODE

A.11.5.2.1.The valve code shall be made up of 3 basic groups ordered as follows:

Group 0 Valve Type	Group 1 Pressure Rating	Group 2 VSL
LLL	- A -	B

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 79 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

Where:
L is a letter;
A, B are numbers.

A.11.5.3.CONCECPT OF BASIC GROUPS

A.11.5.3.1.IDENTIFICATION OF VALVE TYPE (GROUP 0)

A.11.5.3.1.1. This is the basic group that identifies the type of the valve.

A.11.5.3.1.2. This group is comprised of three letters and its configuration is illustrated as follows:

Group 0
Valve Type

LLL

A.11.5.3.1.3. The following characters shall be used to distinguish the type of the valve:

VAG – Needle valve
VAX – Axial valve
VBO – Butterfly valve
VDE – Double Ball valve
VDI – Diaphragm valve
VES – Ball valve
VGA – Gate valve
VGL – Globe valve
VMA – Plug valve
VRE – Check valve

A.11.5.3.2.IDENTIFICATION OF PRESSURE RATING (GROUP 1)

A.11.5.3.2.1. This is the basic group that identifies the pressure rating of the valve.

A.11.5.3.2.2. This group is comprised at least of three and maximum of 5 numbers and its configuration is illustrated as follows:

Group 1
Pressure Rating

A

A.11.5.3.3.The following characters shall be used to distinguish the pressure rating of the valve:

125 – ASME Class 125
150 – ASME Class 150
250 – Maximum pressure 250 psi (for Category A butterfly valves only)
300 – ASME Class 300
600 – ASME Class 600
800 – ASME Class 800
801 – ASME Class 800 with SCH 40S (for ball valves)
801 – ASME Class 800 with SW ends ASME B16.11 (for gate valves)
802 – ASME Class 800 with SCH 80
803 – ASME Class 800 with SCH 160
804 – ASME Class 800 with SCH XXS
900 – ASME Class 900
1500 – ASME Class 1500

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 80 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

1501 – ASME Class 1500 with SCH 40S (for ball vales)

1501 – ASME Class 1500 with SW ends ASME B16.11 (for gate valves)

1502 – ASME Class 1500 with SCH 80

1503 – ASME Class 1500 with SCH 160

1504 – ASME Class 1500 with SCH XXS

2500 – ASME Class 2500, with ASME flanges

2501 – ASME Class 2500 with SCH 40S (for ball valves)

2501 – ASME Class 2500 with SW ends ASME B16.11 (for gate valves)

2502 – ASME Class 2500 with SCH 80

2503 – ASME Class 2500 with SCH 160

2504 – ASME Class 2500 with SCH XXS

2510 – ASME Class 2500, with compact flanges

2510R - ASME Class 2500, with compact flanges and reduced bore

3000 – Maximum Pressure 3.000 psi

5000 – Maximum Pressure 5.000 psi

6000 – Maximum Pressure 6.000 psi

10000 – Maximum Pressure 10.000 psi

A.11.5.3.4.IDENTIFICATION OF VSL (GROUP 2)

A.11.5.3.4.1. This is the basic group that identifies the VSL of the valve.

A.11.5.3.4.2. This group is comprised with one number and its configuration is illustrated as follows:

Group 2

VSL

B

A.11.5.3.4.3. The following characters shall be used to distinguish the VSL of the valve:

1 – VSL-1

2 – VSL-2

3 – VSL-3

4 – VSL-4

A.11.5.4.SPECIFIC STRUCTURE OF A VALVE CODE

A.11.5.4.1.The valve code shall be made up of 4 specific groups ordered as follows:

Group 3 Material Class	Group 4 Body material	Group 5 Obturator type	Group 6 TRIM design

L

-

C

-

D

-

E

Where:

L is a letter;

C, D, E may be either numbers or letters.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 81 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

A.11.5.5.CONCECPT OF SPECIFIC GROUPS

A.11.5.5.1.IDENTIFICATION OF MATERIAL CLASS (GROUP 3)

A.11.5.5.1.1. This is the basic group that identifies the material class of the valve.

A.11.5.5.1.2. This group is comprised of one letter and its configuration is illustrated as follows:

Group 3

Material Class

L

A.11.5.5.1.3. The following characters shall be used to distinguish the material class of the valve:

C – Carbon steel

A – Alloy Steel

S – Stainless steel

D – Duplex steel

N – Nickel alloy 625

U – Uncommon materials

A.11.5.5.2.IDENTIFICATION OF BODY MATERIAL (GROUP 4)

A.11.5.5.2.1. This is the basic group that identifies the body material of the valve.

A.11.5.5.2.2. This group is comprised of one number and its configuration is illustrated as follows:

Group 4

Body Material

C

A.11.5.5.2.3. The following characters shall be used to distinguish the body material of the valve, related

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 82 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

to the specific material class of the valve:

Table A.63 – Identification of body material code, according to respective material class

Body Material	Material Class					
	C	A	S	D	N	U
	Carbon steel	Alloy steel	Stainless steel	Duplex steel	Nickel alloys	Uncommon materials
1	ASTM A105 or ASTM A216 WCB	ASTM A350 LF3 or ASTM 352 LC3	-	ASTM A995 Gr. 1B	Alloy 625 (UNS N06625)	Bronze (Ex: ASTM B61 UNS C92200, ASTM B62 UNS C83600)
2	A350 LF2 CL1, ASTM A352 LCB or ASTM A352 LCC	ASTM A182 F5	ASTM A182 Gr. F316 or ASTM A351 Gr. CF8M	ASTM A182 Gr. F51 or ASTM A995 Gr. 4A	Alloy C-276 (UNS N30002)	Cast Iron (Ex: ASTM A536-65-45-12)
3	(ASTM A105 or ASTM A216 WCB) + Organic Coating (Onshore use only)	ASTM A182 F11 CL2	ASTM A182 Gr. F317 or ASTM A351 Gr. CF8M	ASTM A182 Gr. F55 or ASTM A995 Gr. 6A	Alloy C-276 (UNS N10276)	Nickel Aluminum Bronze (Ex: ASTM B148 UNS C95800)
4	(ASTM A105 or ASTM A216 WCB) + Organic Coating (Offshore)	ASTM A522 Type I	ASTM A182 Gr. F347 or ASTM A351 Gr. CF8C	-	-	Plastics (Ex: PVC, CPVC, and FRP)
5	(ASTM A105 or ASTM A216 WCB) + alloy 625 overlay (UNS N06625)	(ASTM A350 LF3 or ASTM A352 LC3) + alloy 625 overlay (UNS N06625)	-	-	-	Gray Iron (Ex: ASTM A126 Cl B)
6	(ASTM A350 LF2 CL1, ASTM A352 LCC or ASTM A352 LCB) + alloy 625 overlay (UNS N06625)	ASTM A522 Type I + alloy 625 overlay (UNS N06625)	-	-	-	Ductile Iron (Ex: ASTM A395 60-40-18)
7	ASTM A694 F65	ASTM A217 WC9 or ASTM A182 F22	-	-	-	
8	ASTM A216 WCB + PTFE	-	-	-	-	

A.11.5.5.3. IDENTIFICATION OF OBTURATOR TYPE (GROUP 5)

A.11.5.5.3.1. This is the basic group that identifies the obturator type of the valve.

A.11.5.5.3.2. This group is comprised of one number and its configuration is illustrated as follows:

Group 5 Obturator Type

D

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 83 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

A.11.5.5.3.3. The following characters shall be used to distinguish the obturator type of the valve:

Table A.64 – Identification of obturator type, according to valve type

Obturator type	Valve Type			
	Gate valve	Globe valve	Check Valve	Butterfly valve
0	Solid wedge	Bevelled disc	Piston	See Table A.51
1	Slab gate	Angular	Dual Plate	
2	Expanding	-	Swing	
3	Flexible wedge	-	Axial non-slam	
4	-	-	Ball	
5	-	-	Swing, spring loaded, non-slam	
6	-	-	Manufacturer standard	
F	-	Bevelled disc, with fugitive emission	-	

NOTE: For ball and double ball valves, the last two digits “D” (GROUP 5) and “E” (GROUP 6) in the valve code presents the configuration number of the valve, where:

DE – presents the basic configuration, according Table A.25 – for metallic ball valves up to NPS 1 1/2 (“Forged” valves);
DE – presents the basic configuration, according Table A.28 – for metallic double ball valves up to NPS 2 (“Forged” valves);

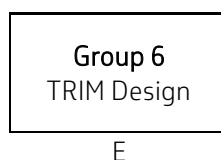
DE – presents the basic configuration, according Table A.52 – for non-metallic valves;

D – presents the selected group seal, according Table A.23 – for ball valves with NPS 2 and above and for double ball valves with NPS 3 and above.

A.11.5.5.4. IDENTIFICATION OF TRIM DESIGN (GROUP 6)

A.11.5.5.4.1. This is the basic group that identifies the TRIM design of the valve.

A.11.5.5.4.2. This group is comprised of one number and its configuration is illustrated as follows:



A.11.5.5.4.3. The following characters shall be used to distinguish the TRIM design of the valve:

Table A.65 – Identification of TRIM design, according to valve type

TRIM design	Valve Type	
	Gate Globe	Check
1	Standard TRIM	Soft TRIM
2	Alternative TRIM	Metal to Metal TRIM
3	N/A	Alternative Metal to Metal TRIM

Valve Type		
Butterfly		
Face type	Lug	Double Flanged (Short Pattern)
RF	1	3
FF	4	6
RTJ	7	9

NOTE: For ball valves, the last two digits “D” and “E” in the valve code presents the configuration number of the valve, where:

DE – presents the basic configuration, according Table A.25 – for metallic ball valves up to NPS 1 1/2 (“Forged” valves).

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 84 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
DE – presents the basic configuration, according Table A.28 – for metallic double ball valves up to NPS 2 (“Forged” valves); DE – presents the basic configuration, according Table A.52 – for non-metallic valves; E – presents the basic configuration, according Table A.26 – for ball valves with NPS 2 and above and for double ball valves with NPS 3 and above. A.11.5.5.5.EXAMPLE OF VALVE CODE A.11.5.5.5.1. Example 1 Gate valve, pressure rating class 900, VSL-2, material class of carbon steel, solid wedge, using standard TRIM: VGA-900-2-C101 Valve Type: VGA – Gate valve Pressure Rating: 900 – Class 900 VSL: 2 – VSL-2 Material Class: C – Carbon steel Body Material: 1 – ASTM A105 or ASTM A216 WCB Obturator type: 0 – Solid wedge Trim design: 1 – Standard TRIM A.11.5.5.5.2. Example 2 Ball valve, pressure rating 1500, VSL-2, material class of carbon steel, configuration 04 with nipple SCH XXS: VES-1504-2-C207 Valve Type: VES – Ball valve Pressure Rating: 1504 – ASME Class 1500 with SCH XXS VSL: 2 – VSL-2 Material Class: C – Carbon steel Body Material: 2 – A350 LF2 CL1 or ASTM A352 LCC Configuration: 07 – Metal-to-metal ball valve with configuration according Table A.25 A.11.5.5.5.3. Example 3 Ball valve, pressure rating 2500, VSL-3, material class of super duplex, soft sealing, fire tested, DIB-2: VES-2500-3-D339 Valve Type: VES – Ball valve Pressure Rating: 2500 – ASME Class 2500 VSL: 3 – VSL-3 Material Class: D – Super duplex Body Material: 3 – ASTM 182 Gr. F55 Seal Group: 3 – Groups D or E Configuration: 9 – Soft sealing ball valve with configuration according Table A.26. VRE-800-1-C10D Valve Type: VRE – Check valve			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 85 OF 86
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
Pressure Rating: 800 – ASME Class 800 VSL: 1 – VSL-1 Material Class: C – Carbon steel Body Material: 1 – ASTM A105 or ASTM A216 WCB Obturator type: 0 – Piston according Table A.43 A – Wafer; B – lug; C – Flange; D – Screwed; E – socket; F – OD; G – butt weld; H – studded			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 86 OF 86
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL
A.12. VALVE DATASHEET - VDS			

Valve Code	VES-1500-1-C150
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-C234
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 Cl1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-C570
Specs	G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-D200
Specs	G11 G14
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	Flange ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-S250
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C118
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-S214
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-S260
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C11F
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-S224
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-S270
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C11G
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-1-S234
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C114
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C134
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C13F
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C150
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTI 410 + Tungsten carbide coating
13. Seat Material	ASTI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C15F
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C160
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C170
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C17F
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTI 410 + Tungsten carbide coating
13. Seat Material	ASTI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C21F
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 316
13. Seat Material	ATSI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C23F
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C534
Specs	G30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C53F
Specs	G30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel with cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C560
Specs	G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C570
Specs	G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For Trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-C57F
Specs	G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-D200
Specs	G11 G14
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	Flange ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-D243
Specs	G16P G16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Fugitive Emission (acc. item A.9.3.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-D31F
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-D33F
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-S21F
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-S234
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / ISO 5167
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31603)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-S250
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-S260
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-S270
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-2-S27F
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-C118
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-C11G
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410
13. Seat Material	ATSI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-C139
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DIB8
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-C152
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-C15G
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-C163
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-C173
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-C218
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-C21G
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-C239
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-C252
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATI316 + Tungsten carbide coating
13. Seat Material	ATI316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-C25G
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTI 316 + Tungsten carbide coating
13. Seat Material	ASTI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-C273
Specs	G6 G19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-C562
Specs	G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-C572
Specs	G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-D219
Specs	G11
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / ISO 5167
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-D293
Specs	G16P G16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RTJ 2" - 16" RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 210°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Fugitive Emission (acc. item A.9.3.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-D353
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for duplex tests see Annex A

Valve Code	VES-1500-3-D373
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-S218
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-S21G
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / ISO 5167
6. Size Range (NPS)	2" – 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31603)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-S229
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1500-3-S239
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / ISO 5167
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31603)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	
Valve Code	VES-1500-3-S252
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obstructor Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-S25G
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-S263
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-3-S273
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. operator type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-1500-4-C154
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-C15U
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-C164
Specs	G4 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-C174
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-C17U
Specs	G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-D354
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-D374
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-D375
Specs	G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-50°C to 200°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4), Fire Tested (acc. item A.6.1.4); SIL-3 (see notes)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3 and HIPPS in place test according A.9.3.7
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, The manufacturer shall present all documentation in order to certify that SIL 3 requirements were achieved for the valve design, Vent and drain connections according Annex A

Valve Code	VES-1500-4-D37E
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-50°C to 200°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6); SIL-3 (see notes)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3 and HIPPS in place test according A.9.3.7
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, The manufacturer shall present all documentation in order to certify that SIL 3 requirements were achieved for the valve design, Vent and drain connections according Annex A

Valve Code	VES-1500-4-D37U
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-S254
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-S25U
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-S264
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-S274
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1500-4-S27U
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-1501-1-D206
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-1-D207
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-1-D306
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-1-D307
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-1-N106
Specs	F30 F32 G30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-1-N107
Specs	F30 F32 G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-2-D207
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	Valve Code	VES-1501-2-D2F7
	Specs	F16 G16P G16
1.	Valve Type	Ball
2.	Sealing Type	Metal to Metal
3.	Valve Specification Level (VSL)	VSL-2
4.	Ball Mouting	Trunnion
5.	Standard	ASME B16.34 LTD
6.	Size Range (NPS)	½" – 1 ½"
7.	End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8.	Pressure Class	1500
9.	Temperature	-46°C to 200°C
10.	Material Class	Duplex Steel
11.	Body Material	ASTM A182 Gr F51
12.	Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13.	Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14.	Seat Insert	N/A
15.	Spring (Seat) Material	UNS N07750
16.	Stem Material	ASTM A276 (UNS S31803)
17.	Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18.	Operator Type	Lever
19.	Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20.	Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21.	Bore Type	Full Bore
22.	Body Construction	split body, bolted
23.	Cladding or Coating	N/A
24.	Valve Testing	FAT according A.9.3
25.	Notes	N/A

Valve Code	VES-1501-2-D307
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-2-N106
Specs	F30 F32 G30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-2-N1F6
Specs	F30 F32 G30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-3-D207
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-3-D2F7
Specs	G16P G16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-3-D307
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-3-D3F7
Specs	G12P G12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-3-N107
Specs	F30 F32 G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1501-3-N1F7
Specs	F30 F32 G30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-C100
Specs	B4 B28
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	API 6D
6. Size Range (NPS)	¾" - 1 ½"
7. End Connection	Flange ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-29°C to 100°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-C110
Specs	B9 B10 B17 B28
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 38" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 38"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 38" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-C120
Specs	B9 B10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 36" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 36" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-C126
Specs	B10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 38"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 38" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-C130
Specs	B9 B10 B17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 36" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 36" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-C150
Specs	B9 B10 B17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 36" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 36" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-C160
Specs	B4 B9 B10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 36" Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 36" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-C162	
Specs	B4	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 38"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 38"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C170	
Specs	B9 B10 B17	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C180	
Specs	B9 B10	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Chrome-Nickel spray and Fuse (acc. item A.8.2.2.4)	
13. Seat Material	AISI 410 + Chrome-Nickel spray and Fuse (acc. item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C210	
Specs	B6 B19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C230	
Specs	B6 B19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C250	
Specs	B6 B19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C270	
Specs	B6 B19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C280	
Specs	B6 B19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Chrome-Nickel spray and Fuse (acc. item A.8.2.2.4)	
13. Seat Material	AISI 316 + Chrome-Nickel spray and Fuse (acc. item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C520	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-C530	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-D110	
Specs	B26	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 28"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 28"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A995 Gr 1b	
12. Obturator Material	Duplex (UNS S32550)	
13. Seat Material	Duplex (UNS S32550)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32550)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 28"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-D200	
Specs	B11 B26	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Floating	
5. Standard	API 6D	
6. Size Range (NPS)	1" - 1 ½"	
7. End Connection	Flange ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	PTFE reinforced with 25% Carbon	
14. Seat Insert	N/A	
15. Spring (Seat) Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-D210	
Specs	B11 B16 B26	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-D216	
Specs	B11 B26	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-D220	
Specs	B16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-D230	
Specs	B16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-D310	
Specs	B12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-D330	
Specs	B12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-S210	
Specs	B3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-S220	
Specs	B3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-1-U300
Specs	B7 B14 B23
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	API 6D
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	Flange ASME B16.5, RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Obturator Material	ASTM B148 (UNS C95800)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	Monel K500
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-U310
Specs	B14 B22 B23
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" – 4" Floating 6" – 24" Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 24"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Obturator Material	ASTM B148 (UNS C95800)
13. Seat Material	ASTM B148 (UNS C95800)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N05500
16. Stem Material	Monel K500
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" – 4" Lever 6" – 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-U316
Specs	B14 B20 B22 B23
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Obturator Material	ASTM B148 (UNS C95800)
13. Seat Material	ASTM B148 (UNS C95800)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N05500
16. Stem Material	Monel K500
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" – 4" Lever 6" – 36" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-1-U350
Specs	B23
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	API 6D
6. Size Range (NPS)	2" – 4"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Obturator Material	ASTM B148 (UNS C95800)
13. Seat Material	ASTM B148 (UNS C95800)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N05500
16. Stem Material	Monel K500
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-1-S206
Specs	F3 G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-1-S207
Specs	F3 G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-2-S206
Specs	F3 G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-2-S207
Specs	F3 G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-2-S2F1
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-100°C to 260°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-2-S2F6
Specs	F3 G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-2-S2F7
Specs	F3 G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-2-S2FB
Specs	G3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1502-3-S2F7
Specs	F3 G3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. obturator Material	ATSI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. bore Type	Full Bore
22. body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	
Valve Code	VES-150-2-C111
Specs	B10 B17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	2" - 4" Floating 6" - 36" Trunnion
5. Standard	API 6D / ISO 5167
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 36" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-2-C117	
Specs	B17	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	2" - 4"	Floating
5. Standard	6" - 36"	Trunnion
6. Size Range (NPS)	API 6D / IOGP S-562	
7. End Connection	2" - 36"	
8. Pressure Class	RF	
9. Temperature	150	
10. Material Class	0°C to 150°C	
11. Body Material	Carbon Steel	
12. Obturator Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	AISI 410	
14. Seat Insert	AISI 410	
15. Spring (Seat) Material	PTFE reinforced with 25% Carbon	
16. Stem Material	UNS N07750	
17. Seat-Stem Seal	ASTM A276 (UNS S41000)	
18. Operator Type	Group A (acc. item A.7.1.5.6)	
19. Additional Requirement	2" - 4"	Lever
20. Seat Type	6" - 36"	Gearbox
21. Bore Type	Fire Tested (acc. item A.6.1.4)	
22. Body Construction	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
23. Cladding or Coating	Full Bore	
24. Valve Testing	split body, bolted	
25. Notes	Partial clad - SS316 weld overlay on all body sealing areas	
	FAT according A.9.3	
	N/A	

Valve Code	VES-150-2-C120		
Specs	B9 B10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / ISO 5-S62		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C130	
Specs	B9 B10 B17	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	2" - 4"	Floating
5. Standard	6" - 36"	Trunnion
6. Size Range (NPS)	API 6D / ISO 5167	
7. End Connection	2" - 36"	
8. Pressure Class	RF	
9. Temperature	150	
10. Material Class	0°C to 150°C	
11. Body Material	Carbon Steel	
12. Obturator Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	AISI 410	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
19. Additional Requirement	6" - 36"	Gearbox
20. Seat Type	N/A	
21. Bore Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
22. Body Construction	Full Bore	
23. Cladding or Coating	split body, bolted	
24. Valve Testing	Partial clad - SS316 weld overlay on all body sealing areas	
25. Notes	FAT according A.9.3	
	N/A	

Valve Code	VES-150-2-C13F	
Specs	B9 B10 B17	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	2" - 4"	Floating
5. Standard	6" - 36"	Trunnion
6. Size Range (NPS)	API 6D / IOGP S-562	
7. End Connection	2" - 36"	
8. Pressure Class	RF	
9. Temperature	150	
10. Material Class	0°C to 150°C	
11. Body Material	Carbon Steel	
12. Obturator Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	AISI 410	
14. Seat Insert	AISI 410	
15. Spring (Seat) Material	PTFE reinforced with 25% Carbon	
16. Stem Material	UNS N07750	
17. Seat-Stem Seal	ASTM A276 (UNS S41000)	
18. Operator Type	Group D (acc. item A.7.1.5.6)	
19. Additional Requirement	2" - 4"	Lever
	6" - 36"	Gearbox
20. Seat Type	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
21. Bore Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
22. Body Construction	Full Bore	
23. Cladding or Coating	split body, bolted	
24. Valve Testing	Partial clad - SS316 weld overlay on all body sealing areas	
25. Notes	FAT according A.9.3	
	N/A	

Valve Code	VES-150-2-C13G	
Specs	B9 B10 B17	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 38"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
19. Additional Requirement	6" - 38"	Gearbox
	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-C150		
Specs	B9 B10 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 38"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 38"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 38"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C152		
Specs	B9 B10 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" ~ 4"	Floating	
5. Standard	6" ~ 36"	Trunnion	
	API 6D / IOGP S-562		
6. Size Range (NPS)	2" ~ 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)		
18. Operator Type	2" ~ 4"	Lever	
19. Additional Requirement	6" ~ 36"	Gearbox	
	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C160		
Specs	B4 B9 B10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C162		
Specs	B4 B9		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
5. Standard	6" - 36"		
	Trunnion		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ATSI 410 + Tungsten carbide coating		
13. Seat Material	ATSI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
19. Additional Requirement	6" - 36"		
	Gearbox		
20. Seat Type	N/A		
21. Bore Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C170		
Specs	B9 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	Trunnion
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
19. Additional Requirement	6" - 36"	Gearbox	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C172		
Specs	B9 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	Trunnion
5. Standard	6" - 36"		
6. Size Range (NPS)	API 6D 2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTI 410 + Tungsten carbide coating		
13. Seat Material	ASTI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	Gearbox
	6" - 36"		
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C17F		
Specs	B9 B10 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	Trunnion
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	Gearbox
19. Additional Requirement	6" - 36"		
	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C210		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C216		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C21F		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C21G		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C230		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C236		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C23F		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C23G		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C250		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
5. Standard	6" - 36" Trunnion		
6. Size Range (NPS)	API 6D / IOGP S-562		
7. End Connection	2" - 36"		
8. Pressure Class	RF		
9. Temperature	150		
10. Material Class	-30°C to 150°C		
11. Body Material	Low-Temperature Carbon Steel		
12. Obturator Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTI 316 + Tungsten carbide coating		
14. Seat Insert	ASTI 316 + Tungsten carbide coating		
15. Spring (Seat) Material	N/A		
16. Stem Material	UNS N07750		
17. Seat-Stem Seal	ASTM A276 (UNS S31600)		
18. Operator Type	Group B (acc. item A.7.1.5.6)		
19. Additional Requirement	2" - 4"	Lever	
20. Seat Type	6" - 36"	Gearbox	
21. Bore Type	N/A		
22. Body Construction	(For trunnion-mounted) Side A: SPE / Side B: SPE		
23. Cladding or Coating	Full Bore		
24. Valve Testing	split body, bolted		
25. Notes	Partial clad - Inconel 625 weld overlay on all body sealing areas		
	FAT according A.9.3		
	N/A		

Valve Code	VES-150-2-C270		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C272		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C27F		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C27G		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C280		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 345°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C282		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Trunnion		
	2" – 4"	Floating	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
	2" – 24"	ASME B16.5, RF	
	26" – 36"	ASME B16.47 Series A, RF	
8. Pressure Class	150		
9. Temperature	-46°C to 345°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C28G		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 345°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C510		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel with cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C51F		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-2-C520		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C526		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C530		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C536		
Specs	B30		
1. valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C560		
Specs	B30		
1. valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C562		
Specs	B30		
1. valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-C56F		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
5. Standard	6" – 30"	Trunnion	
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-2-C56G	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-150-2-C570	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-C572	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-C580	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 340°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-C58F	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 340°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-150-2-D110	
Specs	B11 B26	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 28"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 28"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A995 Gr 1b	
12. Obturator Material	Duplex (UNS S32550)	
13. Seat Material	Duplex (UNS S32550)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32550)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 28"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-D200	
Specs	B11 B26	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Floating	
5. Standard	API 6D	
6. Size Range (NPS)	1" - 1 ½"	
7. End Connection	Flange ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	PTFE reinforced with 25% Carbon	
14. Seat Insert	N/A	
15. Spring (Seat) Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-D210	
Specs	B11 B16 B26	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-D216		
Specs	B16 B26		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D21F		
Specs	B11 B16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 28"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 28"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 28"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D21G		
Specs	B11 B16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 28"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 28"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 28"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D220		
Specs	B16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D226		
Specs	B16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D230		
Specs	B11 B16 B26		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D236		
Specs	B16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D23F		
Specs	B11 B16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 28"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 28"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 28"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D23G		
Specs	B11 B16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 28"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 28"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 28"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-D31G	
Specs	B12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-D330	
Specs	B12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-D33F	
Specs	B12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-D33G	
Specs	B12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-S210	
Specs	B3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-S216	
Specs	B3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-S21F	
Specs	B3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	2" - 24"	ASME B16.5, RF
	26" - 36"	ASME B16.47 Series A, RF
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-S21G	
Specs	B3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-S220	
Specs	B3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-S226	
Specs	B3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-2-S23F		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S23G		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S250		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S252		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S25F		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S25G		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S260		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S262		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S26F		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. obturator Material	ATSI 316 + Tungsten carbide coating		
13. Seat Material	ATSI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S27G		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 200°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S280		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 400°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S282		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 400°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-S28G		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 400°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-U300		
Specs	B7 B14 B23		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Floating		
5. Standard	API 6D		
6. Size Range (NPS)	1" – 1 ½"		
7. End Connection	Flange ASME B16.5, RF		
8. Pressure Class	150		
9. Temperature	0°C to 90°C		
10. Material Class	Uncommon Materials		
11. Body Material	ASTM B148 (UNS C95800)		
12. Obturator Material	ASTM B148 (UNS C95800)		
13. Seat Material	PTFE reinforced with 25% Carbon		
14. Seat Insert	N/A		
15. Spring (Seat) Material	N/A		
16. Stem Material	Monel K500		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	Lever		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-U310		
Specs	B14 B22 B23		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 24"	Trunnion	
5. Standard	APT 6D		
6. Size Range (NPS)	2" – 24"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 90°C		
10. Material Class	Uncommon Materials		
11. Body Material	ASTM B148 (UNS C95800)		
12. Obturator Material	ASTM B148 (UNS C95800)		
13. Seat Material	ASTM B148 (UNS C95800)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N05500		
16. Stem Material	Monel K500		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 24"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-U311		
Specs	B7		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" – 4"	Floating	
	6" – 24"	Trunnion	
5. Standard	APT 6D		
6. Size Range (NPS)	2" – 24"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 90°C		
10. Material Class	Uncommon Materials		
11. Body Material	ASTM B148 (UNS C95800)		
12. Obturator Material	ASTM B148 (UNS C95800)		
13. Seat Material	ASTM B148 (UNS C95800)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N05500		
16. Stem Material	Monel K500		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 24"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-2-U600		
Specs	B14 B27		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Floating		
5. Standard	Manufacturer standard		
6. Size Range (NPS)	1" – 12"		
7. End Connection	ASME B16.1, FF		
8. Pressure Class	150		
9. Temperature	0°C to 70°C		
10. Material Class	Uncommon Materials		
11. Body Material	ASTM A395 60-40-18 + PFA liner		
12. Obturator Material	Stainless Steel + PFA liner		
13. Seat Material	PTFE		
14. Seat Insert	N/A		
15. Spring (Seat) Material	N/A		
16. Stem Material	According manufacturer standard, fitted to service conditions		
17. Seat-Stem Seal	According to manufacturer standard, fitted to service conditions		
18. Operator Type	Lever		
19. Additional Requirement	N/A		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according manufacturer standard		
25. Notes	N/A		

Valve Code	VES-1503-1-C106
Specs	F10P G4 G10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ATSI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1503-2-C107
Specs	F10P F10 G4 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	1500
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. obturator Material	ATSI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 410 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1503-2-C206
Specs	F6 G6
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1503-2-C210
Specs	F6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	1500
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1503-2-C2F7
Specs	F6 G6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1503-3-C1F7
Specs	F10P F10 G10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	1500
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ATSI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 410 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1503-3-C210
Specs	F6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1/2" - 1 1/2"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	1500
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-3-C11G	
Specs	B9 B10 B17	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" – 4"	Floating
	6" – 36"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" – 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" – 4"	Lever
	6" – 36"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For Trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-150-3-C137	
Specs	B9 B10 B17	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	2" - 4"	Floating
5. Standard	6" - 36"	Trunnion
6. Size Range (NPS)	API 6D / ISO 5167 S-562	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
19. Additional Requirement	6" - 36"	Gearbox
20. Seat Type	Fire Tested (acc. item A.6.1.4)	
21. Bore Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DIB	
22. Body Construction	Full Bore	
23. Cladding or Coating	split body, bolted	
24. Valve Testing	Partial clad - SS316 weld overlay on all body sealing areas	
25. Notes	FAT according A.9.3	
	N/A	

Valve Code	VES-150-3-C15G		
Specs	B9 B10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mounting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ATSI 410 + Tungsten carbide coating		
13. Seat Material	ATSI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C162		
Specs	B4 B9		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C163		
Specs	B4 B9		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C172		
Specs	B9 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C173		
Specs	B9 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C17G		
Specs	B9 B10 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C182		
Specs	B9		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 400°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C183		
Specs	B9		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 400°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C18G		
Specs	B9 B10 B17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-29°C to 400°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C216		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mounting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.5.6)		
12. Obturator Material	ATSI 316		
13. Seat Material	ATSI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-C237		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-C23G		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-C252		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C253		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C25G		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-29°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C272		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C273		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C27G		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C282		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	Trunnion
	6" – 36"		
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 345°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ATSI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	ATSI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C283		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	Trunnion
	6" – 36"		
5. Standard	API 6D		
6. Size Range (NPS)	2" – 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 345°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C28G		
Specs	B6 B19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" ~ 4"	Floating	Trunnion
	6" ~ 36"		
5. Standard	API 6D		
6. Size Range (NPS)	2" ~ 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 345°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
13. Seat Material	ASTI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" ~ 4"	Lever	Gearbox
	6" ~ 36"		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-C526		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-C527		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
19. Additional Requirement	6" – 30"	Gearbox	
	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-C536		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-C537		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-C53G		
Specs	B30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-C55G	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / ISOG S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-150-3-C563	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floting
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-150-3-C572	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	2" - 4"	Floating
5. Standard	6" - 30"	Trunnion
6. Size Range (NPS)	API 6D	
7. End Connection	2" - 30"	
8. Pressure Class	RF	
9. Temperature	150	
10. Material Class	0°C to 210°C	
11. Body Material	Carbon Steel with Cladding	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
15. Spring (Seat) Material	N/A	
16. Stem Material	UNS N07750	
17. Seat-Stem Seal	ASTM B637 (UNS N07718)	
18. Operator Type	Group D (acc. item A.7.1.5.6)	
19. Additional Requirement	2" - 4"	Lever
20. Seat Type	6" - 30"	Gearbox
21. Bore Type	N/A	
22. Body Construction	Full Bore	
23. Cladding or Coating	split body, bolted	
24. Valve Testing	Full clad - Inconel 625 weld overlay on all wetted parts	
25. Notes	FAT according A.9.3	
	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-150-3-C57G	
Specs	B30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	2" - 4"	Floating
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	Trunnion
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-150-3-D25G		
Specs	B11 B16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 28"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 28"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 28"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-D262		
Specs	B16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-D263		
Specs	B16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-D272		
Specs	B16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-D273		
Specs	B16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-D27G		
Specs	B11 B16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 28"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 28"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 28"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-D317		
Specs	B12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-D31G		
Specs	B12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-D337		
Specs	B12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-D35G		
Specs	B12		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A		

Valve Code	VES-150-3-D372		
Specs	B12		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A		

Valve Code	VES-150-3-D373		
Specs	B12		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A		

Valve Code	VES-150-3-D37G		
Specs	B12		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A		

Valve Code	VES-150-3-S216		
Specs	B3		
1. valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-S217		
Specs	B3		
1. valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-S21G		
Specs	B3		
1. valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-S227		
Specs	B3		
1. valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-S230		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mounting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-46°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-150-3-S25G		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-S263		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-S26G		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 210°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-S272		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 200°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-S273		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 200°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-S27G		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 200°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-S283		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 400°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-S28G		
Specs	B3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	-100°C to 400°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-150-3-U317		
Specs	B23		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	Trunnion
	8" - 24"		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RF		
8. Pressure Class	150		
9. Temperature	0°C to 90°C		
10. Material Class	Uncommon Materials		
11. Body Material	ASTM B148 (UNS C95800)		
12. Obturator Material	ASTM B148 (UNS C95800)		
13. Seat Material	ASTM B148 (UNS C95800)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N05500		
16. Stem Material	Monel K500		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	Gearbox
	8" - 24"		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-1504-1-C207
Specs	G19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-2-C106
Specs	F4
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-2-C107
Specs	F4
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-2-C206
Specs	G19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-2-C207
Specs	G19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-2-C2F6
Specs	G19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-2-C2F7
Specs	G19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-3-C107
Specs	F4
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-3-C207
Specs	G19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-1504-3-C2F7
Specs	G19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-150-4-C154
Specs	B9 B17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	2" – 4" Floating 6" – 36" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-150-4-C164
Specs	B9
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" – 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-150-4-C174	
Specs	B9 B17	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-4	
4. Ball Mouting	2" - 4"	Floating
5. Standard	API 6D	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	Actuated	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A	

Valve Code	VES-150-4-C184	
Specs	B9	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-4	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	6" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	0°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	Actuated	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A	

Valve Code	VES-2500-2-A634	
Specs	H33	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 12"	
7. End Connection	RTJ	
8. Pressure Class	2500	
9. Temperature	-46°C to 93°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-2500-2-A638	
Specs	H33	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 12"	
7. End Connection	RTJ	
8. Pressure Class	2500	
9. Temperature	-46°C to 93°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-2500-2-A670	
Specs	H33	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 12"	
7. End Connection	RTJ	
8. Pressure Class	2500	
9. Temperature	-100°C to 93°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Hard Coating (acc. Item A.7.1.7.4)	
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Hard Coating (acc. Item A.7.1.7.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-2500-2-A672	
Specs	H33	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 12"	
7. End Connection	RTJ	
8. Pressure Class	2500	
9. Temperature	-100°C to 93°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Hard Coating (acc. Item A.7.1.7.4)	
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Hard Coating (acc. Item A.7.1.7.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-2500-2-C114	
Specs	H10R	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 3"	
7. End Connection	RTJ	
8. Pressure Class	2500	
9. Temperature	-29°C to 120°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-2500-2-C11F	
Specs	H10P - COPY	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 3"	
7. End Connection	RTJ	
8. Pressure Class	2500	
9. Temperature	-29°C to 120°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-2500-2-C11G	
Specs	H10P - COPY	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 3"	
7. End Connection	RTJ	
8. Pressure Class	2500	
9. Temperature	-29°C to 120°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-2500-2-C13F	
Specs	H10P - COPY	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 3"	
7. End Connection	RTJ	
8. Pressure Class	2500	
9. Temperature	-29°C to 120°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	

Valve Code	VES-2500-2-C15G
Specs	H10P - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 3"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTI 410 + Tungsten carbide coating
13. Seat Material	ASTI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	
Valve Code	VES-2500-2-C17G
Specs	H10P - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 3"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTI 410 + Tungsten carbide coating
13. Seat Material	ASTI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2500-3-A673
Specs	H33
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 12"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-100°C to 93°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DIB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2500-3-C17G
Specs	H10P - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 3"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2500-3-D218
Specs	H11
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 16"
7. End Connection	2" - 12" RTJ 14" - 16" ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2500-3-D29G
Specs	H16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ASME B16.5, RTJ, RTJ
8. Pressure Class	2500
9. Temperature	-46°C to 210°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Fugitive Emission (acc. item A.9.3.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2500-4-C17U
Specs	H10P - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 3"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2501-2-N1F9
Specs	H40
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1"
7. End Connection	butt weld ASME B16.25 with nipple SCH 40S
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2502-1-D208
Specs	H16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25 with nipple SCH 80S
8. Pressure Class	2500
9. Temperature	-30°C to 120°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2502-1-D209
Specs	H16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25 with nipple SCH 80S
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2502-1-N108
Specs	H30P H30 H33
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25 with nipple SCH 80S
8. Pressure Class	2500
9. Temperature	-30°C to 120°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2502-1-N109
Specs	H30P H30 H33
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25 with nipple SCH 80S
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2502-2-D208
Specs	H16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25 with nipple SCH 80S
8. Pressure Class	2500
9. Temperature	-30°C to 120°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2502-2-D209
Specs	H16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25 with nipple SCH 80S
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2502-2-D2F8
Specs	H16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25 with nipple SCH 80S
8. Pressure Class	2500
9. Temperature	-30°C to 120°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2502-2-D2F9
Specs	H16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25 with nipple SCH 80S
8. Pressure Class	2500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-A638
Specs	H33
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 93°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. cladding or coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	
Valve Code	VES-2510-2-A672
Specs	H33
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 93°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C118
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410
13. Seat Material	ATSI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C11G
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C138
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C13G
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C152
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTI 410 + Tungsten carbide coating
13. Seat Material	ASTI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	
Valve Code	VES-2510-2-C15G
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C162
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C172
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C17G
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C218
Specs	H6
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C238
Specs	H6
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 Cl1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	Valve Code	VES-2510-2-C23G
	Specs	H6
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" – 18"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-2510-2-C252
Specs	H6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C272
Specs	H6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 Cl1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTI 316 + Tungsten carbide coating
13. Seat Material	ASTI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C27G
Specs	H6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C534
Specs	H30P H30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-C53F
Specs	H30P H30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	Valve Code	VES-2510-2-C570
	Specs	H30P H30
1. Valve Type		Ball
2. Sealing Type		Metal to Metal
3. Valve Specification Level (VSL)		VSL-2
4. Ball Mounting		Trunnion
5. Standard		API 6D
6. Size Range (NPS)		2" - 24"
7. End Connection		ISO 27509, IX
8. Pressure Class		2500
9. Temperature		-29°C to 200°C
10. Material Class		Carbon Steel with Cladding
11. Body Material		ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material		ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material		ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert		N/A
15. Spring (Seat) Material		UNS N07750
16. Stem Material		ASTM B637 (UNS N07718)
17. Seat-Stem Seal		Group E (acc. item A.7.1.5.6)
18. Operator Type		Gearbox
19. Additional Requirement		N/A
20. Seat Type		(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type		Full Bore
22. Body Construction		split body, bolted
23. Cladding or Coating		Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing		FAT according A.9.3
25. Notes		N/A

Valve Code	VES-2510-2-C57F
Specs	H30P H30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D214
Specs	H11 H16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D234
Specs	HI6
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D270
Specs	HI6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D314
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D334
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D350
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D338
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D352
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D33F
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D35F
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-D37F
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 200°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-S214
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-S21F
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-S234
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-S250
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Oburator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-S260
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-2510-2-S270
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A



Valve Code	VES-2510-3-A672
Specs	H33
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 93°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-C153
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-C162
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.5.6)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-C17G
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-C273
Specs	H6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AIISI 316 + Tungsten carbide coating
13. Seat Material	AIISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-C57G
Specs	H30P H30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel with cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-D35G
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obstructor Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-N17G
Specs	H40
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 6"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Tungsten carbide coating
13. Seat Material	ASTM B564 (UNS N06625) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DIB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-S262
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5,6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-S263
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-S272
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-S273
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-3-S27G
Specs	H3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-2510-4-A674
Specs	H33
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 93°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510-4-C174
Specs	H10P - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510-4-C17U
Specs	H10P H10 - COPY
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510-4-C574
Specs	H30P H30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510-4-C575
Specs	H30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	4" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel with cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4), Fire Tested (acc. item A.6.1.4); SIL-3 (see notes)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3 and HIPPS in place test according A.9.3.7
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, The manufacturer shall present all documentation in order to certify that SIL 3 requirements were achieved for the valve design, Vent and drain connections according Annex A

Valve Code	VES-2510-4-C57E
Specs	H30P H30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel with cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6); SIL-3 (see notes)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3 and HIPPS in place test according A.9.3.7
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, The manufacturer shall present all documentation in order to certify that SIL 3 requirements were achieved for the valve design, Vent and drain connections according Annex A

Valve Code	VES-2510-4-C57U
Specs	H30P H30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel with cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510-4-D354
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	4" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510-4-D35U
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	4" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510-4-D374
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	4" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 200°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510-4-D375
Specs	H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 200°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4), Fire Tested (acc. item A.6.1.4); SIL-3 (see notes)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3 and HIPPS in place test according A.9.3.7
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, The manufacturer shall present all documentation in order to certify that SIL 3 requirements were achieved for the valve design, Vent and drain connections according Annex A

Valve Code	VES-2510-4-D37E
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	4" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 200°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6); SIL-3 (see notes)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3 and HIPPS in place test according A.9.3.7
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, The manufacturer shall present all documentation in order to certify that SIL 3 requirements were achieved for the valve design, Vent and drain connections according Annex A

Valve Code	VES-2510-4-D37U
Specs	H12P H12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	4" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 200°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-2510R-2-C534
Specs	H30

Valve Code	VES-2510R-2-S270
Specs	H6



Valve Code	VES-300-1-C100
Specs	C28
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	API 6D
6. Size Range (NPS)	¾" - 1 ½"
7. End Connection	Flange ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 100°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C110
Specs	C9 C10P C10 C28
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 32" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 32" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C120
Specs	C9 C10P C10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 32" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 32" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C130
Specs	C9 C10P C10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 32" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 32" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C150
Specs	C9 C10P C10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 32" Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 32" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C160
Specs	C9 C10P C10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 32" Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 32" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C170
Specs	C9 C10P C10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 32" Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 32" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C180
Specs	C9 C10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	2" - 4" Floating 6" - 32" Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	2" - 4" Lever 6" - 32" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C1F0
Specs	C8
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	Flange ASME B16.5, RF
8. Pressure Class	300, 600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-1-C210		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-C230		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-C510		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-C520		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-C530		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-C560		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-C570		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D200		
Specs	C11		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	Floating		
5. Standard	API 6D		
6. Size Range (NPS)	1" - 1 ½"		
7. End Connection	Flange ASME B16.5, RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	PTFE reinforced with 25% Carbon		
14. Seat Insert	N/A		
15. Spring (Seat) Material	N/A		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	Lever		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D210		
Specs	C11 C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / ISOG S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D250		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D260		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D270		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D310		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D330		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-S210		
specs	C3.		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-U300		
specs	C23		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	Floating		
5. Standard	API 6D		
6. Size Range (NPS)	1" - 1 ½"		
7. End Connection	Flange ASME B16.5, RF		
8. Pressure Class	150, 300		
9. Temperature	0°C to 90°C		
10. Material Class	Uncommon Materials		
11. Body Material	ASTM B148 (UNS C95800)		
12. Obturator Material	ASTM B148 (UNS C95800)		
13. Seat Material	PTFE reinforced with 25% Carbon		
14. Seat Insert	N/A		
15. Spring (Seat) Material	N/A		
16. Stem Material	Monel K500		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	Lever		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-U316		
specs	C23		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	2" - 24"	ASME B16.5, RF	
	26" - 32"	ASME B16.47 Series A, RF	
8. Pressure Class	300		
9. Temperature	0°C to 90°C		
10. Material Class	Uncommon Materials		
11. Body Material	ASTM B148 (UNS C95800)		
12. Obturator Material	ASTM B148 (UNS C95800)		
13. Seat Material	ASTM B148 (UNS C95800)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N05500		
16. Stem Material	Monel K500		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C110		
Specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C120		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C126		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C130		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C136		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C13F		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C13G		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C150		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C152		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C160		
Specs	C4 C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	Trunnion
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTI 410 + Tungsten carbide coating		
13. Seat Material	ASTI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
19. Additional Requirement	6" - 32"	Gearbox	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C172		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C17F		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C17G		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C180		
specs	C9 C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 400°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Chrome-Nickel spray and Fuse (acc. item A.8.2.2.4)		
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C182		
specs	C9 C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 400°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C18G		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 400°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C210		
specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C216		
specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C21F		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C23F		
specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C23G		
specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C270		
specs	C19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C27F		
specs	C6		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 24"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 24"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C510		
specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C51F		
specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 36"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C520		
specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-C526		
specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		

Valve Code	VES-300-2-C560	
Specs	C30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-C56F	
Specs	C30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-C572	
Specs	C30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-C57G	
Specs	C30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	2" - 4"	Floating
5. Standard	6" - 30"	Trunnion
6. Size Range (NPS)	API 6D	
7. End Connection	2" - 30"	
8. Pressure Class	RF	
9. Temperature	300	
10. Material Class	-29°C to 200°C	
11. Body Material	Carbon Steel with Cladding	
12. Obturator Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
15. Spring (Seat) Material	N/A	
16. Stem Material	UNS N07750	
17. Seat-Stem Seal	ASTM B637 (UNS N07718)	
18. Operator Type	Group E (acc. item A.7.1.5.6)	
19. Additional Requirement	2" - 4"	Lever
20. Seat Type	6" - 30"	Gearbox
21. Bore Type	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
22. Body Construction	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
23. Cladding or coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D200
Specs	C11
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	API 6D
6. Size Range (NPS)	1" - 1 1/2"
7. End Connection	Flange ASME B16.5, RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-2-D216		
Specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D21F	
Specs	C11 C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	2" - 24"	ASME B16.5, RF
	26" - 32"	ASME B16.47 Series A, RF
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D21G	
Specs	C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 36"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D220	
Specs	C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D226	
Specs	C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D230	
Specs	C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D236	
Specs	C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D23F	
Specs	C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D23G	
Specs	C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D250	
Specs	C16	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating	
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D252		
Specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	Trunnion
	6" - 32"		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	6" - 32" gearbox
	6" - 32"		
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D260		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D262		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D270		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D272		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D27F		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D27G		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D2F0		
specs	C8 C11		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Floating		
5. Standard	API 6D		
6. Size Range (NPS)	1" - 1 ½"		
7. End Connection	Flange ASME B16.5, RF		
8. Pressure Class	150, 300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	PTFE reinforced with 25% Carbon		
14. Seat Insert	N/A		
15. Spring (Seat) Material	N/A		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	Lever		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D310		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D316		
Specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; D1B-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D336		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D33F		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-D33G		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-S210		
specs	C3.		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-S211		
specs	C3.		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 24"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 24"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-2-S216		
specs	C3.		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C116		
specs	C4 C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C117		
specs	C4 C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C11G		
Specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C137		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C13G		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C152		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C153		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C15G		
specs	C9 C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C162		
specs	C4 C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C163		
specs	C4 C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C172		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C173		
Specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTI 410 + Tungsten carbide coating		
13. Seat Material	ASTI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4" 6" – 32"	Lever Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C18G		
Specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 400°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
13. Seat Material	AISI 410 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C216		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C217		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C21G		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C236		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C237		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C23G		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C252		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C253		

Valve Code	VES-300-3-C27G		
Specs	C6 C19		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 200°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-C517		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C51G		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C526		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C527		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C536		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C537		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C53G		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-C55G	
Specs	C30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / ISOG S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-C563	
Specs	C30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floting
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-C572	
Specs	C30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	2" - 4"	Floating
5. Standard	6" - 30"	Trunnion
6. Size Range (NPS)	API 6D	
7. End Connection	2" - 30"	
8. Pressure Class	RF	
9. Temperature	300	
10. Material Class	0°C to 210°C	
11. Body Material	Carbon Steel with Cladding	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
15. Spring (Seat) Material	N/A	
16. Stem Material	UNS N07750	
17. Seat-Stem Seal	ASTM B637 (UNS N07718)	
18. Operator Type	Group D (acc. item A.7.1.5.6)	
19. Additional Requirement	2" - 4"	Lever
20. Seat Type	6" - 30"	Gearbox
21. Bore Type	N/A	
22. Body Construction	Full Bore	
23. Cladding or Coating	split body, bolted	
24. Valve Testing	Full clad - Inconel 625 weld overlay on all wetted parts	
25. Notes	FAT according A.9.3	
	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-C57G	
Specs	C30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	2" - 4"	Floating
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-D216		
specs	C11 C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D217		
specs	C11 C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D21G		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D226		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D227		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D236		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D237		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D23G		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D252		
Specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mounting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-D263		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-D272		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-D273		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-D27G		
specs	C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 32"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-D316		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D317		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D31G		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D336		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D337		
Specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" – 4"	Floating	
	6" – 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760)		
13. Seat Material	Super Duplex (UNS S32760)		
14. Seat Insert	PTFE reinforced with 25% carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" – 4"	Lever	
	6" – 30"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-D372		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	6" - 30" Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	6" - 30" Gearbox
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-D373		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	6" - 30" Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	6" - 30" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-D37G		
specs	C12		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	6" - 30" Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Super Duplex Steel		
11. Body Material	ASTM A182 Gr F55		
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S32760)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	6" - 30" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-S216		
specs	C3.		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	6" - 30" Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	6" - 30" Gearbox
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-S217		
specs	C3.		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	6" - 30" Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	6" - 30" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-3-S252		
specs	C3.		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	6" - 30" Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	6" - 30" Gearbox
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-3-S253		
specs	C3.		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	2" - 4"	Floating	6" - 30" Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	6" - 30" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-300-4-C154		
specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-4		
4. Ball Mouting	2" - 4"	Floating	6" - 32" Trunnion
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)		
18. Operator Type	Actuated		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A		

Valve Code	VES-300-4-C164		
Specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-4		
4. Ball Mouting	2" - 4"	Floating	6" - 32"
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ATSI 410 + Tungsten carbide coating		
13. Seat Material	ATSI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	Actuated		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A		

Valve Code	VES-300-4-D264
Specs	C16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-5000-4-D294
Specs	GL6P
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 14"
7. End Connection	API 6A, RTJ
8. Pressure Class	max. pressure 5000 psi
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Fugitive Emission (acc. item A.9.3.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-1-C132
Specs	E17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 120°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	Devlon V-API
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-4-D274
Specs	C16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-1-A534
Specs	E32
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 4"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-1-C134
Specs	E9 E10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-4-D354
Specs	C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-1-C114
Specs	E4 E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-1-C150
Specs	E9 E10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-300-4-D374
Specs	C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-1-C124
Specs	E4 E10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-1-C160
Specs	E4 E10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-1-C170	
Specs	E9 E10	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-C1F0	
Specs	E8	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Floating	
5. Standard	ISO 17292	
6. Size Range (NPS)	½" - 1 ½"	
7. End Connection	Flange ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. Obturator Material	AISI 410	
13. Seat Material	PEEK	
14. Seat Insert	N/A	
15. Spring (Seat) Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-C214		
Specs	E6 E19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 26"		
7. End Connection	2" - 24"	ASME B16.5, RF	
	26"	ASME B16.47 Series A, RF	
8. Pressure Class	600		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 26"	gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-1-C234		
Specs	E6 E19		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 26"		
7. End Connection	2" - 24"	ASME B16.5, RF	
	26"	ASME B16.47 Series A, RF	
8. Pressure Class	600		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 26"	gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-1-C524	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-C534	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-C560		
Specs	E30		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 4"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	Gearbox
	4"		
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-1-C570		
Specs	E30		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 4"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	Gearbox
	4"		
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-1-C580	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-D200	
Specs	E11 E14	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Floating	
5. Standard	API 6D	
6. Size Range (NPS)	1" - 1 ½"	
7. End Connection	Flange ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Devlon V-API	
14. Seat Insert	N/A	
15. Spring (Seat) Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-D214	
Specs	E11 E14 E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-D224	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-D234	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-S214	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-S224	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-S234	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-S250	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-1-S260		
Specs	E3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 210°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	Gearbox
	4" - 32"		
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-2-A538	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-A53F	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-A53G	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-A570	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-A572	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-A57G	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-A580	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 340°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-A582	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 400°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-A58G
Specs	E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 16" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C11F
Specs	E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C132	
Specs	E17	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 120°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 24"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C11G
Specs	E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410
13. Seat Material	ATSI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" – 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C124	
Specs	E4 E10	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" – 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3" 4" – 24"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Page 80 of 213

Valve Code	VES-600-2-C13G
Specs	E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" – 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C152	
Specs	E9 E10	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" – 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3"	Lever
	4" – 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C15G	
Specs	E8 E9 E10 E17	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 24"	Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C162	
Specs	E4 E9 E10	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.5.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3" 4" – 24"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C172	
Specs	E9 E10	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C17G
Specs	E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" – 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C1F0	
Specs	E8	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Floating	
5. Standard	ISO 17292	
6. Size Range (NPS)	½" - 1 ½"	
7. End Connection	Flange ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. Obturator Material	AISI 410	
13. Seat Material	PEEK	
14. Seat Insert	N/A	
15. Spring (Seat) Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C214	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C218	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C21F	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C21G	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C234	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C238	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C23F	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C23G	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C252	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C270	
Specs	E6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C28F	
Specs	E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 325°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)	
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C28G	
Specs	E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 400°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)	
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C514	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 36"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C51F	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C524	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C528	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C534	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C53G
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C560
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C562
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C570
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C572
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C57F
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C57G
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C580
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 400°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-C582	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C58G	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-C59F	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D114	
Specs	E11	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 120°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A995 Gr 1b	
12. Obturator Material	Duplex (UNS S32550)	
13. Seat Material	Duplex (UNS S32550)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32550)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D200	
Specs	E11 E14	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Floating	
5. Standard	API 6D	
6. Size Range (NPS)	1" - 1 ½"	
7. End Connection	Flange ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Devlon V-API	
14. Seat Insert	N/A	
15. Spring (Seat) Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D214	
Specs	E11 E14 E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D218	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D21F	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D21G	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D224		
Specs	E16		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 18"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 18"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-2-D238	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D23F	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-D23G	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S214	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S218	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S21F	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S21G	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S224	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S228	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S234	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S250	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" – 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	ATSI 316 + Tungsten carbide coating	
13. Seat Material	ATSI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3"	Lever
	4" – 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S25F
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-2-S260	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 210°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3" 4" – 32"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S270	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 32"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-2-S27F
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-3-A572	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 16"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-A573	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-A57G	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-A582	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 400°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-A583	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 400°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-A58G	
Specs	E32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 400°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C118		
Specs	E4 E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. operator Type	2" – 3"	Lever	
	4" – 24"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-3-C119		
Specs	E4 E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 24"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-3-C11G		
Specs	E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 24"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-3-C128		
Specs	E4 E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3" 4" - 24"	Lever Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-3-C13G
Specs	E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever
	4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-3-C152		
Specs	E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)		
18. Operator Type	2" – 3"	Lever	
	4" – 24"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-C153		
Specs	E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTI 410 + Tungsten carbide coating		
13. Seat Material	ASTI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 3"	Lever	
	4" – 24"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-C15G		
Specs	E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" ~ 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ATSI 410 + Tungsten carbide coating		
13. Seat Material	ATSI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" ~ 3"	Lever	
	4" ~ 24"	gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-C162		
Specs	E4 E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. obturator Material	ATSI 410 + Tungsten carbide coating		
13. Seat Material	ATSI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 24"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-C163		
Specs	E4 E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" – 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 3"	Lever	
	4" – 24"	Gearbox	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-C172		
Specs	E9 E10 E17		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410 + Tungsten carbide coating		
13. Seat Material	AISI 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 24"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-C173	
Specs	E9 E10 E17	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3" 4" – 24"	Lever gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body seating areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C238	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-C239	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-C23G	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-C252	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C253	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C25G	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C272	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C273	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C27G	
Specs	E6 E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 26"	
7. End Connection	RF	
	2" - 24"	ASME B16.5, RF
	26"	ASME B16.47 Series A, RF
8. Pressure Class	600	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 26"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C28G	
Specs	E19	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 400°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-C553	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C55G	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C562	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C563	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C572	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C573	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C57G	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C582	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 20" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C583	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-C58G	
Specs	E30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-D218	
Specs	E11 E14 E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-D219	
Specs	E11 E14 E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-D21G	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-D228	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-D229	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-D238	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-D252		
Specs	E11 E14 E16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 18"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" – 3"	Lever	
	4" – 18"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-D253
Specs	E11 E14 E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 18"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" – 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-600-3-D25G	
Specs	E16	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating	
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 18"	Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-D262		
Specs	E16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 18"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 3"	Lever	
	4" – 18"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-D263
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-600-3-D272		
Specs	E16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 18"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" – 3"	Lever	Gearbox
19. Additional Requirement	4" – 18"		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-600-3-D273
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-600-3-D27G
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-600-3-S218		
Specs	E3		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mounting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	600		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-600-3-S229	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-S238	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-S239	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-S23G	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-600-3-S252	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-S253	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-S25G	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-S262	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 210°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-S263	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 210°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-3-S272	
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 32" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-600-4-A574
Specs	E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-A584
Specs	E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-C154
Specs	E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-C164
Specs	E4 E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-C174
Specs	E9 E10 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-C254
Specs	E6 E19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 26"
7. End Connection	RF
	6" - 24"ASME B16.5, RF
	26"ASME B16.47 Series A, RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated, Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-C274
Specs	E6 E19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 26"
7. End Connection	RF
	6" - 24"ASME B16.5, RF
	26"ASME B16.47 Series A, RF
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated, Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-C564
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	4" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-C574
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-600-4-C584
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 400°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-801-1-D201
Specs	B16 C16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D202
Specs	B16 C16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D203
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D204
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D205
Specs	B16 C16 E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D301
Specs	B12 C12
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D305
Specs	B12 C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-N101
Specs	B30 C30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-N102
Specs	B30 C30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-N104
Specs	C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-S201
Specs	B3 C3.
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-S203
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-S205
Specs	B3 E3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ATSI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D202
Specs	B16 C16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D204
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D2F1
Specs	B16 C16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D2F3
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D2F5
Specs	B16 C16 E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D305
Specs	B12 C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D3F5
Specs	B12 C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N102
Specs	B30 C30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N105
Specs	B30 C30 C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N107
Specs	B30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 210°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. seat type	N/A
21. bore Type	Full Bore
22. Body Construction	split body, bolted
23. cladding or coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N1F4
Specs	C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S201
Specs	B3 C3.
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N1F5
Specs	B30 C30 C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N1F6
Specs	B30 C30 C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 340°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S206
Specs	B3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S2F1
Specs	B3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS 31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S2F3
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S2F4
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S2F5
Specs	B3 E3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ATSI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S2FA
Specs	B3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-D205
Specs	B16 C16 E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-D2F5
Specs	B16 C16 E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-D3F5
Specs	B12 C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	YES-801-3-N1F5
Specs	B30 C30 C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-S203
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-S205
Specs	B3 E3 C3.
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-S2F2
Specs	B3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40s
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-S2F4
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-802-2-C103
Specs	E4
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80s
8. Pressure Class	800
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ATSI 410
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-1-C102
Specs	B9 B10 C10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ASTM A410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-1-C201
Specs	B6 B19 C6 C19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obstructor Material	ATSI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	YES-803-1-C205
Specs	B6 B19 C6 C19 E6 E19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-30°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obstructor Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C102
Specs	B9 B10 C10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ATSI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C104
Specs	E10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ASTI 410
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C1F1
Specs	B9 B10 C9 C10P C10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Oburator Material	ATSI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C1F5
Specs	B9 B10 C9 C10P C10 E9 E10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ATSI 410 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ATSI 410 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C202
Specs	B6 B19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obstructor Material	ASTI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C204
Specs	E6 E19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. obturator Material	ASTI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	
Valve Code	VES-803-2-C206
Specs	B19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 240°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C2F2
Specs	B6 B19 C6 C19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obstructor Material	ATSI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C2F4
Specs	E6 E19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-2-C2FA
Specs	E19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 325°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. bore Type	Full Bore
22. body Construction	split body, bolted
23. cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-3-C105
Specs	B9 B10 C9 C10P C10 E9 E10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ATSI 410 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ATSI 410 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-3-C203
Specs	E6 E19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. bore Type	Full Bore
22. body construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-3-C205
Specs	B6 B19 C6 C19 E6 E19
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obstructor Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-3-C2F2
Specs	B6 B19 C6 C19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obstructor Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-803-3-C2F4
Specs	E6 E19
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 160
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-1-C101
Specs	B17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	¾" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ATSI 410
13. Seat Material	PTFE reinforced with 25% carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-1-C105
Specs	B17 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 12929
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	AISI 410 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-2-C101
Specs	B17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	¾" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-2-C103
Specs	E17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-2-C105
Specs	B17 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-2-C1F3
Specs	E17
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	1" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-2-C1F5
Specs	B17 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	¾" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-3-C105
Specs	B17 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-804-3-C1F5
Specs	B17 E17
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	¾" – 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH XXS
8. Pressure Class	800
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-A534
Specs	F32
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 4"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-A570
Specs	F32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 4"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 200°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-A580
Specs	F32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" – 4"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-C112
Specs	F10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 120°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	Devlon V-API
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" – 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-C114
Specs	F4 F10P F10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" – 24" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-C134	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C150	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C160	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C170	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C214	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C234	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C250	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C270	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C524	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-C534	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 4"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-1-D200
Specs	F11 F14
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Floating
5. Standard	API 6D
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	Flange ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Devlon V-API
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-D214
Specs	F11 F14 F16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 120°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-S214
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-S222
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 120°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	Devlon V-API
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-S224
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-S234
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-S250
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-S260
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-1-S270
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-A534
Specs	F32
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 16" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-A538
Specs	F32
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 16" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-A53F
Specs	F32
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 16" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-A53G	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-A570	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-A572	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-A57F	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-A57G	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-A580	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 400°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-A582	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 400°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-A58G	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 400°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C114	
Specs	F4 F10P F10	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C118		
Specs	F4 F10P F10		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 24"		
7. End Connection	RTJ		
8. Pressure Class	900		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 410		
13. Seat Material	AISI 410		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS A41000)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	3" - 4"	4" - 24"
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-900-2-C138	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 24"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DTB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C13G
Specs	F10P F10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410
13. Seat Material	ATSI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" – 24" gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-C152
Specs	F4 F10P
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATI1 410 + Tungsten carbide coating
13. Seat Material	ATI1 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-C15G
Specs	F10P F10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-C162	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 24"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C172	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C17F	
Specs	F10P F10	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C17G	
Specs	F10P F10	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C214	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C218	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C21F	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C21G	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C234	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C238	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C23F	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C23G	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	

Valve Code	VES-900-2-C25F	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C25G	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-2-C270	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C272	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-2-C27F	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C27G	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-2-C280	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 340°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C282	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 340°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C28F	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 325°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C524		
Specs	F30		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" – 24"		
7. End Connection	RTJ		
8. Pressure Class	900		
9. Temperature	0°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" – 3"	Lever	
	4" – 24"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-900-2-C538	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C53F	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C53G	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C560	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C562	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C570	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C572	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C57F	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-C57G
Specs	F30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-D112
Specs	F11
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 120°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A995 Gr 1b
12. Obturator Material	Duplex (UNS S32550)
13. Seat Material	Duplex (UNS S32550)
14. Seat Insert	Devlon V-API
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S32550)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-D200
Specs	F11 F14
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Floating
5. Standard	API 6D
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	Flange ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Devlon V-API
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-D214
Specs	F11 F14 F16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 120°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-D218
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-D21G
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-D234
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-D238
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-D23G
Specs	F16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N06625
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-S214
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-S218
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-S21F
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-S21G	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S224	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S228	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S234	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S238	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S23F	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S23G	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S250	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S252	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S25F	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" – 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3"	Lever
	4" – 18"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S262	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S270	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S272	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S27F	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S27G	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-2-S28F	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 260°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-A572	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 16" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-A573	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 16" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-A57G	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 16" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-A582	
Specs	F32	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 400°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 16"	gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C119	
Specs	F4 F10P F10	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 24"	Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-3-C138	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" 4" - 24"	Lever Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-3-C13G
Specs	F10P F10
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-3-C153
Specs	F4 F10P F10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTI 410 + Tungsten carbide coating
13. Seat Material	ASTI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" – 3" Lever 4" – 24" gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-3-C162	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ATSI 410 + Tungsten carbide coating	
13. Seat Material	ATSI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3"	Lever
	4" – 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C172	
Specs	F4 F10P	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ATSI 410 + Tungsten carbide coating	
13. Seat Material	ATSI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" – 3"	Lever
	4" – 24"	gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C17G
Specs	F10P F10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 410 + Tungsten carbide coating
13. Seat Material	ATSI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-3-C238		
Specs	F6		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mounting	Trunnion		
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 20"		
7. End Connection	RTJ		
8. Pressure Class	900		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3"	Lever	
	4" - 20"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-900-3-C253
Specs	F6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 Cl1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-3-C239	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according to A.9.3	
25. Notes	N/A	

Valve Code	VES-900-3-C25G
Specs	F6
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-3-C23G
Specs	F6
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-3-C272	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 Cl1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ATSI 316 + Tungsten carbide coating	
13. Seat Material	ATSI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C273	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C27G	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C283	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 340°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-3-C28G	
Specs	F6	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 340°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
13. Seat Material	AISI 316 + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 20"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-3-C562	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C563	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C572	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C573	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 24"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-C57G	
Specs	F30	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 24" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-D218	
Specs	F11	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 18" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-3-D239	
Specs	F16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-D23G	
Specs	F16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-D252	
Specs	F16	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating	
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 20" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-D253	
Specs	F16	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating	
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-D272	
Specs	F16	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating	
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 20" Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-D273	
Specs	F16	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating	
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-D27G	
Specs	F16	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	0°C to 210°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating	
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3" Lever	4" - 20" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-900-3-S218	
Specs	F3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 3"	Lever
	4" - 18"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-900-3-S229
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 GR F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-3-S239
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D / ISOG S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-3-S252		
Specs	F3		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-3		
4. Ball Mounting	Trunnion		
5. Standard	API 6D / ISO 5-562		
6. Size Range (NPS)	2" - 18"		
7. End Connection	RTJ		
8. Pressure Class	900		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316		
12. Oburator Material	AISI 316 + Tungsten carbide coating		
13. Seat Material	AISI 316 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-System Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 3" 4" - 18"	Lever Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A		

Valve Code	VES-900-3-S25G
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DDB-2 & DDB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-3-S263
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-3-S273
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Tungsten carbide coating
13. Seat Material	ATSI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-3-S27G
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-3-S28G
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 260°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	2" - 3" Lever 4" - 18" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A

Valve Code	VES-900-4-A574
Specs	F32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 200°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-900-4-A584
Specs	F32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. Item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-900-4-C154
Specs	F10P F10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-900-4-C164
Specs	F10P
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-900-4-C174
Specs	F10P F10
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Tungsten carbide coating
13. Seat Material	AISI 410 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-900-4-S254
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	6" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-900-4-S264
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-900-4-S274
Specs	F3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Tungsten carbide coating
13. Seat Material	AISI 316 + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07718
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

A.12.2 RISING STEM

Valve Code	VES-600-2-A589
Specs	E32
1. Valve Type	Rising Stem
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-100°C to 340°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	Top entry, solid body
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-600-3-A589
Specs	E32
1. Valve Type	Rising Stem
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-100°C to 340°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	Top entry, solid body
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-2-A589
Specs	F32
1. Valve Type	Rising Stem
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-100°C to 340°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	Top entry, solid body
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-900-3-A589
Specs	F32
1. Valve Type	Rising Stem
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-100°C to 340°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	Top entry, solid body
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VDE-10000-2-D37F
Specs	J12P J12
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6A
6. Size Range (NPS)	3" – 4"
7. End Connection	API 6A, 6BX
8. Pressure Class	max. press 10000 psi
9. Temperature	-50°C to 155°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-10000-2-D3F5
Specs	J12P J12
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	API 6A
6. Size Range (NP5)	1" 3/4"
7. End Connection	Flanged API 6A type 6BX
8. Pressure Class	max. press 10000 psi
9. Temperature	-50°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Reduced Bore (min. 10mm)
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-10000-2-N104
Specs	J40P J40
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	API 6A
6. Size Range (NPS)	1 "3/4"
7. End Connection	Flanged API 6A type 6BX x NPT 1/2" ASME B1.20.1
8. Pressure Class	max. press 10000 psi
9. Temperature	-100°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	PEEK
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Reduced Bore (min. 10mm)
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-10000-2-N171
Specs	J40P J40
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6A
6. Size Range (NPS)	3" - 4"
7. End Connection	API 6A, 6BX
8. Pressure Class	max. press 10000 psi
9. Temperature	-50°C to 155°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-10000-2-N17F
Specs	J40P J40
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6A
6. Size Range (NPS)	3"
7. End Connection	API 6A, 6BX
8. Pressure Class	max. press 10000 psi
9. Temperature	-50°C to 155°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-10000-2-N1F1
Specs	J40P J40
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	API 6A
6. Size Range (NPS)	1 1⁄2"
7. End Connection	Flanged API 6A type 6BX
8. Pressure Class	max. press 10000 psi
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	PEEK
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Reduced Bore (min. 10mm)
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-10000-2-N1F2
Specs	J40P J40
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	API 6A
6. Size Range (NPS)	1 1⁄2"
7. End Connection	Flanged API 6A type 6BX x NPT 1/2" ASME B1.20.1
8. Pressure Class	max. press 10000 psi
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	PEEK
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Reduced Bore (min. 10mm)
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-10000-2-N1F3
Specs	J40P J40
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	API 6A
6. Size Range (NPS)	1 1⁄2"
7. End Connection	Flanged API 6A type 6BX
8. Pressure Class	max. press 10000 psi
9. Temperature	-100°C to 155°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Reduced Bore (min. 10mm)
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-10000-2-N1F4
Specs	J40P J40
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	API 6A
6. Size Range (NPS)	1 1⁄2"
7. End Connection	Flanged API 6A type 6BX x NPT 1/2" ASME B1.20.1
8. Pressure Class	max. press 10000 psi
9. Temperature	-100°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Reduced Bore (min. 10mm)
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C101
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C102
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C103
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C104
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C105
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C106
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C115
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C134
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105
13. Seat Material	ASTM A105
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C13F
Specs	G10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C202
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C204
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C206
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C214
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C215
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C21F
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C234
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C235
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C23F
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-C2F1
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C2F2
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C2F4
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-C2F6
Specs	G6 G19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-D202
Specs	G14
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-D204
Specs	G16P G16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6); SIL-3 (see notes)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-D2F3
Specs	G16P G16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-D301
Specs	GI2P GI2
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-D303
Specs	G12P G12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code		VDE-1500-2-D314
Specs	G12	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RTJ	
8. Pressure Class	1500	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)	
18. Operator Type	Gearbox	
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-1500-2-D334
Specs	G12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-D33F
Specs	G12P G12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-D3F2
Specs	G12P G12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-D3F4
Specs	G12P G12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	NAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-N1F8
Specs	G30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	NAT according A.9.3
24. Cladding or Coating	F/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-S204
Specs	G3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-S215
Specs	G3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. operator Type	gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-S23F
Specs	G3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-2-S2F2
Specs	G3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-2-S2F6
Specs	G3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-1500-3-D23F
Specs	G16P G16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-3-D29G
Specs	G16P G16
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Fugitive Emission (acc. item A.9.3.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-1500-3-D2F6
Specs	G16P G16
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Adiitional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-1-D201
Specs	B11 B26
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C101
Specs	B9 B10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C102
Specs	B10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C105
Specs	B10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C106
Specs	B10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C107
Specs	B10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-29°C to 340°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Adiitional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C108
Specs	B10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-29°C to 340°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C114
Specs	B10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" - 8" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-150-2-C115
Specs	B10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-150-2-C11F	
Specs	B9 B10 B17	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	3" - 8"	Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-150-2-C1F1	
Specs	B9 B10 B17	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. Obturator Material	AISI 410	
13. Seat Material	PTFE reinforced with 25% Carbon	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-150-2-C1F2	
Specs	B9 B10 B17	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1	
8. Pressure Class	150	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. Obturator Material	AISI 410	
13. Seat Material	PTFE reinforced with 25% Carbon	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-150-2-C1F5	
Specs	B9 B10 B17	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 316	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-150-2-C1F6	
Specs	B9 B10 B17	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1	
8. Pressure Class	150	
9. Temperature	-29°C to 200°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 316	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-150-2-C1F7	
Specs	B9 B10 B17	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 340°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 316	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-150-2-C1F8	
Specs	B9 B10 B17	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1	
8. Pressure Class	150	
9. Temperature	-29°C to 340°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 316	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-150-2-C201	
Specs	B6 B19	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1	
12. Obturator Material	AISI 316	
13. Seat Material	PTFE reinforced with 25% Carbon	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-150-2-C202	
Specs	B6 B19	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1	
8. Pressure Class	150	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1	
12. Obturator Material	AISI 316	
13. Seat Material	PTFE reinforced with 25% Carbon	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-150-2-C203
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C206
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C207
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C208
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C215
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-150-2-C21F
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-150-2-C235
Specs	B6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-150-2-C2F1
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C2F2
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C2F3
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C2F4
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C2F5
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C2F6
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C2F7
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C2F8
Specs	B6 B19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-C511
Specs	B30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 4" - 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-150-2-C51F
Specs	B30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 4" - 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-150-2-D201
Specs	B11 B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D202
Specs	B11 B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D203
Specs	B11 B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D204
Specs	B11 B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D210
Specs	B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-150-2-D295
Specs	B16
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	N/A
5. Standard	API 6D
6. Size Range (NPS)	N/A
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Fugitive Emission (acc. item A.9.3.6)
18. Operator Type	N/A
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); SIL-3 (see notes), Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DDB (notes)
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	Needle valve between balls for cavity-pressure relief, All materials described in this datasheet are required for both valve

Valve Code	VDE-150-2-D2F1
Specs	B11 B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D2F2
Specs	B11 B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D2F3
Specs	B11 B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D2F4
Specs	B11 B16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D301
Specs	B12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D302
Specs	B12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D303
Specs	B12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D304
Specs	B12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D3F1
Specs	B12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-D3F2
Specs	B12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S204
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-100°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S206
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S208
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-100°C to 340°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316
13. Seat Material	ATSI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S2F1
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ASTI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S2F3
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ASTM 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S2F5
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S2F6
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S2F7
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-100°C to 340°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-150-2-S2F8
Specs	B3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	150
9. Temperature	-100°C to 340°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2500-2-C101
Specs	H10P H10R – COPY
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2500-2-C102
Specs	H10P H10R – COPY
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2500-2-C11F
Specs	H10P – COPY
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2500-2-C1F1
Specs	H10P – COPY
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2500-2-C1F2
Specs	H10P – COPY
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2500-2-N103
Specs	H33
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2500-2-N104
Specs	H33
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C101
Specs	H10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" – 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C102
Specs	H10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" – 2"
7. End Connection	Compact Flange ISO 27509 IX x FNPT 1/2" ASME B1.20.1
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C115
Specs	H10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 120°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C11F
Specs	H10P H10 - COPY
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 120°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C135
Specs	H10P - COPY
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	4" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 120°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C13F
Specs	H10P H10 - COPY
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C170
Specs	H10P - COPY
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	4" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	AISI 410 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C1F1
Specs	H10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Adiitional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C1F2
Specs	H10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX x FNPT 1/2" ASME B1.20.1
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Adiitional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C203
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Adiitional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C204
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX x FNPT 1/2" ASME B1.20.1
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C205
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C215
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C21F
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	3" - 8" IX 4" - 8" ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C235
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C271
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-C2F3
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-C2F4
Specs	H6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX x FNPT 1/2" ASME B1.20.1
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-D3F3
Specs	H12P H12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

	
Valve Code	VDE-2510-2-D3F5
Specs	H12P H12
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-50°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-N103
Specs	H30P H30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-N1F3
Specs	H30P H30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	NAT according A.9.3
24. Cladding or Coating	F/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-S203
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	ASTI 316
13. Seat Material	ASTI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-S205
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-100°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-S235
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-S23F
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-S270
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-S27F
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-2-S2F3
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-S2F4
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX x FNPT 1/2" ASME B1.20.1
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	PEEK
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-2-S2F5
Specs	H3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Trunnion
5. Standard	ASME B16.34
6. Size Range (NPS)	1" - 2"
7. End Connection	Compact Flange ISO 27509 IX Ring
8. Pressure Class	2500
9. Temperature	-100°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-2510-3-D37F
Specs	H12
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-2510-3-D37G
Specs	H12P
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C101
Specs	C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C102
Specs	C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C105
Specs	C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C106
Specs	C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C114
Specs	C10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" – 8" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C115
Specs	C10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" – 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C11F
Specs	C9 C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" – 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C1F1
Specs	C9 C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C1F2
Specs	C9 C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C1F5
Specs	C9 C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C1F6
Specs	C9 C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C1F7
Specs	C9 C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 340°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C1F8
Specs	C9 C10P C10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-29°C to 340°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C201
Specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C202
Specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C205
specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C206
specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C215
specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C21F
specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 410
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C27F
specs	C6
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 410
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C2F1
specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C2F2
specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C2F5
specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C2F6
Specs	C6 C19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-C510
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" Lever Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C51F
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-C57F
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-D201
Specs	C16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-D202
Specs	C16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-D203
Specs	C16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-D204
Specs	C16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-D3F2
Specs	C12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-D3F3
Specs	C12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-D3F4
Specs	C12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N101
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N102
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N105
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N106
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N1F1
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N1F2
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N1F5
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N1F6
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-A515
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr Lc3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; D8B
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-A51F
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-A53F
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PTFE reinforced with 25% Carbon
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-A571
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-A57F
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-A581
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 340°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-A58F
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 340°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C101
Specs	E10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C102
Specs	E10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C104
Specs	E10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ASTI 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

	
Valve Code	VDE-600-2-C106
Specs	E10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C115
Specs	E9 E10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C124	
Specs	E10	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" – 8"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	3" – 8"	Lever gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-C12F	
Specs	E9 E10 E17	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	3" 4" - 8"	Lever gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-C135	
Specs	E9 E10	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410	
13. Seat Material	AISI 410	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	3"	Lever gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve. Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-C13F
Specs	E9 E10 E17
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert Material	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C1F1
Specs	E10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C1F3
Specs	E10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C201
Specs	E6 E9 E19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C202
Specs	E6 E9 E17 E19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C203
Specs	E6 E9 E19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C204
Specs	E6 E9 E17 E19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C205
Specs	E6 E9 E19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C206
Specs	E6 E9 E17 E19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C214
Specs	E6 E19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C215
Specs	E6 E19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C21F
Specs	E6 E19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact Flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C234		
Specs	E6 E19		
1. Valve Type	Double Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Ball Mouting	Trunnion		
5. Standard	API 6D		
6. Size Range (NPS)	3" - 8"		
7. End Connection	ASME B16.5, RF, RF		
8. Pressure Class	600		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PEEK		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)		
18. Operator Type	3"	Lever	
	4" - 8"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB		
21. Bore Type	Full Bore		
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10		
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief		

Valve Code	VDE-600-2-C235	
Specs	E6 E19	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	ASME B16.5, RF, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3"	Lever
	4" - 8"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-C23F	
Specs	E6 E19	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	ASME B16.5, RF, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3"	Lever
	4" - 8"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-C27F	
Specs	E19	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 200°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3"	Lever
	4" - 8"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-C28F	
Specs	E19	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 325°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	3"	Lever
	4" - 8"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-C2F1		
Specs	E6 E19		
1. Valve Type	Double Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Obturator Type	Floating		
5. Standard	ASME B16.34		
6. Size Range (NPS)	½" - 2"		
7. End Connection	Flanged ASME B16.5, RF		
8. Pressure Class	600		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1		
12. Obturator Material	AISI 316		
13. Seat Material	PEEK		
14. Seat Insert Material	N/A		
15. Spring Material	N/A		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)		
18. Operator Type	Lever		
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	One piece forged body		
23. Product Testing	FAT according A.9.3		
24. Cladding or Coating	N/A		
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm		

Valve Code	VDE-600-2-C2F2		
Specs	E6 E19		
1. Valve Type	Double Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Obturator Type	Floating		
5. Standard	ASME B16.34		
6. Size Range (NPS)	½" - 2"		
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1		
8. Pressure Class	600		
9. Temperature	-30°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1		
12. Obturator Material	AISI 316		
13. Seat Material	PEEK		
14. Seat Insert Material	N/A		
15. Spring Material	N/A		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)		
18. Operator Type	Lever		
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	One piece forged body		
23. Product Testing	FAT according A.9.3		
24. Cladding or Coating	N/A		
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm		

Valve Code	VDE-600-2-C2F3		
Specs	E6 E19		
1. Valve Type	Double Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Obturator Type	Floating		
5. Standard	ASME B16.34		
6. Size Range (NPS)	½" - 2"		
7. End Connection	Flanged ASME B16.5, RF		
8. Pressure Class	600		
9. Temperature	-46°C to 150°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A350 Gr LF2 CL1		
12. Obturator Material	AISI 316		
13. Seat Material	PEEK		
14. Seat Insert Material	N/A		
15. Spring Material	N/A		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)		
18. Operator Type	Lever		
19. Aditiional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
20. Seat Type	N/A		
21. Bore Type	Full Bore		
22. Body Construction	One piece forged body		
23. Product Testing	FAT according A.9.3		
24. Cladding or Coating	N/A		
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm		

Valve Code	VDE-600-2-C2F4
Specs	E6 E19
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C2F5
Specs	E6 E19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C2F6
Specs	E6 E19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C2F7
Specs	E19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-46°C to 400°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM A105 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Acceptance criteria for sealing tests see Annex A.

Valve Code	VDE-600-2-C2F8
Specs	E19
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-46°C to 400°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM A105 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Acceptance criteria for sealing tests see Annex A.

Valve Code	VDE-600-2-C515
Specs	E30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" Lever 4" – 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve. Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C51F
Specs	E30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" Lever 4" – 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve. Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C57F
Specs	E30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" Lever 4" – 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad – Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve. Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C633
Specs	E6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	(ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A 351 CF8M
13. Seat Material	AISI 316
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	SS AISI 316
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" Lever 4" – 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad – Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VDE-600-2-D201
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-D202
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-D203
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-D204
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-D214
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" LeverGearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-D215
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" LeverGearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-D21F
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" LeverGearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-D224
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" LeverGearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-D225
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" LeverGearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-D22F
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" LeverGearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-D234
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" LeverGearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-D2F2
Specs	E16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-N105
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Need valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-N1F1
Specs	E30 E32
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-N1F3
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-N1F5
Specs	E30 E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-N1F6
Specs	E30 E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-N1F7
Specs	E30 E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-N1F8
Specs	E30 E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S201
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S202
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S203
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S204
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S205
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S206
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S214
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – 8" Lever Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DDB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S215
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S21F
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S224
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S225
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S22F
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S234
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S235
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S23F
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - 8" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-S27F	
Specs	E3	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)	
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3"	Lever
	4" - 8"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-S2F2
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S2F4
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity- pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-S2F6
Specs	E3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Stainless steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C102
Specs	F10P F10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ASTI 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C104
Specs	F10P F10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	ATSI 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C105
Specs	F10P F10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C106
Specs	F10P F10
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AISI 410 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C115
Specs	F10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-C11F
Specs	F10P F10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-C135
Specs	F10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-C13F
Specs	F10P F10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mouting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 410
13. Seat Material	AISI 410
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-C201
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C202
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C203
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C204
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C205
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C206
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C207
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C214
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – Lever 4" – 8" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-C215
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – Lever 4" – 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-C21F
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" – 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + SS316 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" – Lever 4" – 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad – SS316 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-C235	
Specs	F6	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3"	Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code		VDE-900-2-C2F1
Specs	F6	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" – 2"	
7. End Connection	Flanged ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1	
12. Obturator Material	ASTI 316	
13. Seat Material	PEEK	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-900-2-C2F3
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C2F5
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-C2F7
Specs	F6
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-D202
Specs	F14 F16
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-S203
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-S204
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-S205
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	900
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-S206
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-900-2-S214
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 4" - 8" Lever Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-S215
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 4" - 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-S21F
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" - 4" - 8" Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-S234
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D / IOGP S-562
6. Size Range (NPS)	3" - 8"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" - 4" - 8" Lever Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-900-2-S235	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3" - 8"	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-900-2-S23F	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PEEK	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3" - 8"	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-900-2-S270	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)	
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3" - 8"	Lever
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-900-2-S28F	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	Trunnion	
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 260°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)	
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)	
18. Operator Type	3" - 8"	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-900-2-S2F1	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	PEEK	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-900-2-S2F2	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1	
8. Pressure Class	900	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	PEEK	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-900-2-S2F3	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	PEEK	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-900-2-S2F4	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	PEEK	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-900-2-S2F5	
Specs	F3	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Floating	
5. Standard	ASME B16.34	
6. Size Range (NPS)	½" - 2"	
7. End Connection	Flanged ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)	
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)	
14. Seat Insert Material	N/A	
15. Spring Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	One piece forged body	
23. Product Testing	FAT according A.9.3	
24. Cladding or Coating	N/A	
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm	

Valve Code	VDE-900-2-S2F6
Specs	F3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" – 2"
7. End Connection	Flanged ASME B16.5, RTJ x NPT 1/2" ASME B1.20.1
8. Pressure Class	900
9. Temperature	-100°C to 200°C
10. Material Class	Stainless steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ATSI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

A.12.4 GATE VALVES

Valve Code	VGA-10000-2-D31F	
Specs	J12P J12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" - 2"	1 1⁄2"/II"
	3"	2 1/II"
	4"	2 I/II"
	6"	4 1/II"
	8" - 10"	7 1/II"
	12" - 14"	9"
	16"	11"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Gate Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Gearbox	
20. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-2-N111	
Specs	J40	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" - 2"	1 1⁄2"/II"
	3"	2 1/II"
	4"	2 I/II"
	6"	4 1/II"
	8" - 10"	7 1/II"
	12" - 14"	9"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-100°C to 155°C	
10. Material Class	Nickel Alloys	
11. Body Material	ASTM B564 (UNS N06625)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B564 (UNS N06625) + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM B564 (UNS N06625) + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Gearbox	
20. Additional Requirement	Fire tested acc. API 6FA	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-2-N11F	
Specs	J40	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" - 2"	1 1⁄2"/II"
	3"	2 1/II"
	4"	2 I/II"
	6"	4 1/II"
	8" - 10"	7 1/II"
	12" - 14"	9"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-100°C to 155°C	
10. Material Class	Nickel Alloys	
11. Body Material	ASTM B564 (UNS N06625)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B564 (UNS N06625) + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM B564 (UNS N06625) + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Gearbox	
20. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-3-C711	
Specs	J10	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1 1⁄2" - 2"	1 1⁄2"/II"
	3"	2 1/II"
	4"	2 I/II"
	6"	4 1/II"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	0°C to 200°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A694 F65	
12. TRIM Material	N/A	
13. Gate Material	AISI 410 + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	AISI 410 + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Gearbox	
20. Additional Requirement	Fire tested acc. API 6FA	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-3-D311	
Specs	J12P J12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" - 2"	1 1⁄2"/II"
	3"	2 1/II"
	4"	2 I/II"
	6"	4 1/II"
	8" - 10"	7 1/II"
	12" - 14"	9"
	16"	11"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Gate Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Gearbox	
20. Additional Requirement	Fire tested acc. API 6FA	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-3-D31F	
Specs	J12P J12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" - 2"	1 1⁄2"/II"
	3"	2 1/II"
	4"	2 I/II"
	6"	4 1/II"
	8" - 10"	7 1/II"
	12" - 14"	9"
	16"	11"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Gate Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Gearbox	
20. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-3-N111	
Specs	J40P J40	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" - 2"	1 1⁄2"/II"
	3"	2 1/II"
	4"	2 I/II"
	6"	4 1/II"
	8" - 10"	7 1/II"
	12" - 14"	9"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-100°C to 155°C	
10. Material Class	Nickel Alloys	
11. Body Material	ASTM B564 (UNS N06625)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B564 (UNS N06625) + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM B564 (UNS N06625) + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Gearbox	
20. Additional Requirement	Fire tested acc. API 6FA	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-3-N11F	
Specs	J40P J40	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" - 2"	1 1⁄2"/II"
	3"	2 1/II"
	4"	2 I/II"
	6"	4 1/II"
	8" - 10"	7 1/II"
	12" - 14"	9"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-100°C to 155°C	
10. Material Class	Nickel Alloys	
11. Body Material	ASTM B564 (UNS N06625)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B564 (UNS N06625) + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM B564 (UNS N06625) + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Gearbox	
20. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-4-D311	
Specs	J12P J12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-4	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1 ½" - 2"	1 ⅜/II"
	3"	2 ⅜/II"
	4"	2 I/II"
	6"	4 ⅜/II"
	8" - 10"	7 ⅜/II"
	12" - 14"	9"
	16"	11"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Gate Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Actuated	
20. Additional Requirement	Fire tested acc. API 6FA	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-10000-4-D31F	
Specs	J12P J12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-4	
4. Obturator Type	Slab	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" - 2"	1 ⅜/II"
	3"	2 ⅜/II"
	4"	2 I/II"
	6"	4 ⅜/II"
	8" - 10"	7 ⅜/II"
	12" - 14"	9"
	16"	11"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Gate Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
14. Seat Material	ASTM A182 Gr F55 + Tungsten Carbide (acc. item A.8.2.2.3)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	According manufacturer standard, fitted to service conditions	
18. Seat Seal Material	PEEK+UNS R30003 (Elgiloy)	
19. Operator Type	Actuated	
20. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)	
21. Body Construction	According manufacturer standard	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Non rising stem	

Valve Code	VGA-125-1-U531	
Specs	A4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.1, FF	
8. Pressure Class	125	
9. Temperature	0°C to 120°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM A126 CL B	
12. TRIM Material	N/A	
13. Gate Material	ASTM B62 (UNS C83600)	
14. Seat Material	ASTM B62 (UNS C83600)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B62 (UNS C83600)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 24"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-1500-1-C131	
Specs	G10	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	ASTM A182 Gr F6a	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-1500-1-D231		
Specs	G11 G14 G16P G16		
1. Valve Type	Gate		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Obturator Type	Flexible wedge, one piece		
5. Standard	API 600 / IOGP S-611		
6. Size Range (NPS)	2" - 24"		
7. End Connection	ASME B16.5, RTJ		
8. Pressure Class	1500		
9. Temperature	-50°C to 200°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51		
12. TRIM Material	N/A		
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr		
14. Seat Material	ASTM A182 Gr F51		
15. Seat Insert Material	N/A		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Stem Seal Material	Flexible graphite with inconel wire		
18. Seat Seal Material	N/A		
19. Operator Type	2"	non rising handwheel	
	3" - 24"	Gearbox	
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)		
21. Body Construction	bolted bonnet		
22. Product Testing	FAT according A.9.3		
23. Cladding or Coating	N/A		
24. Stem Design	Rising Stem OS&Y		

Valve Code	VGA-1500-1-D331	
Specs	G12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Gate Material	(A182 F55 or A995 6A) + E/ERCoCr	
14. Seat Material	ASTM A182 Gr F55	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-1500-1-S231	
Specs	G3	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-29°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 16"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-1500-2-C131	
Specs	G10	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	ASTM A182 Gr F6a	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-1500-2-C132	
Specs	G4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 10"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 10"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-1500-2-C231	
Specs	G6	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 16"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-1500-2-S231	
Specs	G3	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 16"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-1501-1-C101
Specs	F10P F10 G10

Valve Code	VGA-1501-1-C102
Specs	F4 G4

Valve Code	VGA-1501-1-S201
Specs	F3 G3

Valve Code	VGA-1501-2-D201
Specs	F16 G16P G16

Valve Code	VGA-1501-2-D301
Specs	G12

Valve Code	VGA-150-1-C131	
Specs	B4 B9 B10 B17	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-1-C132	
Specs	B4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. Item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-1-D231	
Specs	B11 B16 B26	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-1-D331	
Specs	B12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F55 or A995 6A) + E/ERCoCr	
14. Seat Material	Super Duplex (UNS S32760)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-1-S231	
Specs	B3	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-1-U331	
Specs	B7	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge (NPS>=2), one piece	
5. Standard	API 600	
6. Size Range (NPS)	1" - 24"	
7. End Connection	ASME B16.24, RF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B150 (UNS C63200)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	1" - 10"	non rising handwheel
	12" - 24"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-1-U332	
Specs	B14 B22 B23 B24	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge (NPS>=2), one piece	
5. Standard	APT 600	
6. Size Range (NPS)	1" - 24"	
7. End Connection	ASME B16.24, FF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B150 (UNS C63200)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	1" - 10"	non rising handwheel
	12" - 24"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-2-C131	
Specs	B4 B9 B10 B17	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	APT 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-2-C132	
Specs	B4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	APT 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. Item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-2-D231	
Specs	B11 B16 B26	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	APT 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-150-2-S231	
Specs	B3	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 10"	non rising handwheel
	12" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-2501-2-D301	
Specs	H12P H12	

Valve Code	VGA-150-2-U331	
Specs	B7	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge (NPS>=2), one piece	
5. Standard	API 600	
6. Size Range (NPS)	1" - 24"	
7. End Connection	ASME B16.24, RF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B150 (UNS C63200)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	1" - 10"	non rising handwheel
	12" - 24"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-2501-2-N101	
Specs	H33	

Valve Code	VGA-150-2-U332	
Specs	B14 B22 B23 B24	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge (NPS>=2), one piece	
5. Standard	API 600	
6. Size Range (NPS)	1" - 24"	
7. End Connection	ASME B16.24, FF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B150 (UNS C63200)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	1" - 10"	non rising handwheel
	12" - 24"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-2510-2-C131	
Specs	H10	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	ASTM A182 Gr F6a	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 12"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-D231	
Specs	C11 C16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-2501-1-D201
Specs	H11 H16

Valve Code	VGA-2510-2-D231	
Specs	H11 H16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	ASTM A182 Gr F51	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 12"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-C131	
Specs	C4 C9 C10	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-C132	
Specs	C4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. Item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-D331	
Specs	C12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-50°C to 150°C	
10. Material Class	Super duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F55 or A995 6A) + E/ERCoCr	
14. Seat Material	Super Duplex (UNS S32760)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-S231	
Specs	C3.	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-U331	
Specs	C23	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge (NPS>=2), one piece	
5. Standard	API 600	
6. Size Range (NPS)	1" - 24"	
7. End Connection	ASME B16.24, RF	
8. Pressure Class	300	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B150 (UNS C63200)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	1" - 10"	non rising handwheel
	12" - 24"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-U332	
Specs	C14	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge (NPS>=2), one piece	
5. Standard	API 600	
6. Size Range (NPS)	1" - 6"	
7. End Connection	ASME B16.24, FF	
8. Pressure Class	300	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B150 (UNS C63200)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	non rising handwheel	
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-2-C131	
Specs	C4 C9 C10 C28	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-2-C132	
Specs	C4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-2-D231	
Specs	C11 C16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-600-1-A731	
Specs	E34	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge (NPS>=2), one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	600	
9. Temperature	-29°C to 500°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A217 WC9 (UNS J21890)	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 14"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-600-1-C131	
Specs	E9 E10 E17	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-600-1-C132	
Specs	E4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	APT 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-600-1-D231	
Specs	E11 E14 E16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	APT 600 / IOGP S-611	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 16"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-600-1-S231	
Specs	E3	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 16"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-600-2-C131	
Specs	E9 E10 E17	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-801-1-C102	
Specs	B4 C4 E4	

Valve Code	VGA-801-2-A701	
Specs	E34	

Valve Code	VGA-900-1-C131	
Specs	F10	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-600-2-C132	
Specs	E4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-801-1-D201	
Specs	B16 C16 E16	

Valve Code	VGA-801-2-C101	
Specs	B4 C4	

Valve Code	VGA-900-1-C132	
Specs	F4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 3"	non rising handwheel
	4" - 18"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-801-1-A701	
Specs	E34	

Valve Code	VGA-801-1-D301	
Specs	B12 C12	

Valve Code	VGA-801-2-C201	
Specs	B19	

Valve Code	VGA-900-1-D231	
Specs	F11 F14 F16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 3"	non rising handwheel
	4" - 20"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-801-1-C101	
Specs	B4 B9 B10 B17 C9 C10P C10 E9 E10 E17	

Valve Code	VGA-801-1-S201	
Specs	B3 E3 C3.	

Valve Code	VGA-801-2-N101	
Specs	B30	

Valve Code	VGA-900-1-S231	
Specs	F3	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 3"	non rising handwheel
	4" - 18"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	



Valve Code	VGL-10000-2-D301
Specs	J12
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	API 6A
6. Size Range (NPS)	1" - 6"
7. End Connection	API 6A, studed type 6BX (stud and nuts included)
8. Pressure Class	max. press 10000 psi
9. Temperature	-50°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F55
14. Seat Material	ASTM A182 Gr F55
15. Stem Material	ASTM A276 (UNS S32760)
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	According manufacturer standard
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-10000-2-D3F1
Specs	J12P J12
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	API 6A
6. Size Range (NPS)	1" - 6"
7. End Connection	API 6A, studed type 6BX (stud and nuts included)
8. Pressure Class	max. press 10000 psi
9. Temperature	-50°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F55
14. Seat Material	ASTM A182 Gr F55
15. Stem Material	ASTM A276 (UNS S32760)
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	According manufacturer standard
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-10000-2-N101
Specs	J40
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	API 6A
6. Size Range (NPS)	1" - 6"
7. End Connection	API 6A, studed type 6BX (stud and nuts included)
8. Pressure Class	max. press 10000 psi
9. Temperature	-100°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Stem Material	ASTM B637 (UNS N07718)
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	According manufacturer standard
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-10000-2-N1F1
Specs	J40P J40
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	API 6A
6. Size Range (NPS)	1" - 6"
7. End Connection	API 6A, studed type 6BX (stud and nuts included)
8. Pressure Class	max. press 10000 psi
9. Temperature	-100°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Stem Material	ASTM B637 (UNS N07718)
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	According manufacturer standard
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-125-1-U501
Specs	A4
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	BS 5152
6. Size Range (NPS)	2" - 12"
7. End Connection	ASME B16.1, FF
8. Pressure Class	125
9. Temperature	0°C to 120°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM A126 CL B
12. TRIM Material	N/A
13. Obturator Material	ASTM B62 (UNS C83600)
14. Seat Material	ASTM B62 (UNS C83600)
15. Stem Material	According manufacturer standard, fitted to service conditions
16. Seat-Stem Seal Material	PTFE
17. Operator Type	2" - 6" Rising Handwheel 8" - 12" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirements	N/A

Valve Code	VGL-1500-2-C101
Specs	G10
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 14"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM CR 13 and HF according BS 1873
13. Obturator Material	ASTM A182 Gr F6a
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A276 (UNS S41000)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 14" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-1500-2-C102
Specs	G4
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 10"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM HF according BS 1873
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A276 (UNS S41000)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 10" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-1500-2-C1F1
Specs	G10
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 14"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM CR 13 and HF according BS 1873
13. Obturator Material	ASTM A182 Gr F6a
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A276 (UNS S41000)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 14" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-1500-2-C1F2
Specs	G10
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 14"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM HF according BS 1873
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A276 (UNS S41000)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 14" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-1500-2-C201
Specs	G6 G19
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 14"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 14" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-1500-2-C2F1
Specs	G6 G19
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 14"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 14" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-1500-2-C501
Specs	G30
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 14"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	0°C to 120°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 + Organic Coating (acc. item A.8.2.3.1)
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F51
14. Seat Material	ASTM A182 Gr F51
15. Stem Material	ASTM A276 (UNS S31803)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 14" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	Organic Coating
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-1500-2-C5F1	
Specs	G30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	0°C to 120°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + Organic Coating (acc. item A.8.2.3.1)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F51	
14. Seat Material	ASTM A182 Gr F51	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Organic Coating	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-1500-2-D3F1	
Specs	G12P G12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-46°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F55	
14. Seat Material	ASTM A182 Gr F55	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-1500-2-S2F2	
Specs	G3	
1. valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	N/A (Low Temperature Stem)	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-1500-2-D201	
Specs	G11 G14 G16P G16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-46°C to 200°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F51	
14. Seat Material	ASTM A182 Gr F51	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-1500-2-S201	
Specs	G3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-150-1-C101	
Specs	B9 B10 B17 B28	
1. valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-1500-2-D2F1	
Specs	G16P G16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-46°C to 200°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F51	
14. Seat Material	ASTM A182 Gr F51	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-1500-2-S202	
Specs	G3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	N/A (Low Temperature Stem)	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-150-1-C102	
Specs	B4	
1. valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-1500-2-D301	
Specs	G12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-46°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F55	
14. Seat Material	ASTM A182 Gr F55	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-1500-2-S2F1	
Specs	G3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	1500	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	

Valve Code	VGL-150-1-D201	
Specs	B11 B16 B26	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-1-D301	
Specs	B12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-46°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. TRIM Material	N/A	
13. Obturator Material	Super Duplex (UNS S32760)	
14. Seat Material	Super Duplex (UNS S32760)	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-1-S201	
Specs	B3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-1-U301	
Specs	B7	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Stem Material	ASTM B150 (UNS C63200)	
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-1-U302	
Specs	B14 B22 B23 B24	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 48"	
7. End Connection	ASME B16.24, FF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Stem Material	ASTM B150 (UNS C63200)	
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 48"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-1-U303	
Specs	B14 B23	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	MSS SP-80	
6. Size Range (NPS)	1" - 1 ½"	
7. End Connection	ASME B16.24, FF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B62 (UNS C83600)	
15. Stem Material	ASTM B150 (UNS C63200)	
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	Rising Handwheel	
18. Stem Construction	outside screw stem	
19. Bonnet Construction	unnion bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-C101	
Specs	B9 B10 B17 B28	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-C102	
Specs	B4	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-C1F1	
Specs	B9 B10 B17	
1. valve Type	Globe	
2. sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-150-2-C1F2	
Specs	B9 B10 B17	
1. valve Type	Globe	
2. sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-150-2-C201	
Specs	B6 B19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-C501	
Specs	B30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-C5F1	
Specs	B30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-150-2-D101	
Specs	B11 B26	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A995 Gr 1b	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S32550)	
14. Seat Material	Duplex (UNS S32550)	
15. Stem Material	ASTM A276 (UNS S32550)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-D201	
Specs	B11 B16 B26	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 24"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-D2F1	
Specs	B11 B16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-150-2-D3F1	
Specs	B12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-46°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. TRIM Material	N/A	
13. Obturator Material	Super Duplex (UNS S32760)	
14. Seat Material	Super Duplex (UNS S32760)	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-150-2-S201	
Specs	B3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-S2F1	
Specs	B3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-150-2-U301	
Specs	B7	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.24, RF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Stem Material	ASTM B150 (UNS C63200)	
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-150-2-U302	
Specs	B14 B22 B23 B24	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.24, FF	
8. Pressure Class	150	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Stem Material	ASTM B150 (UNS C63200)	
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 24"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-225-1-U101
Specs	A4 B24
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	MSS SP-80
6. Size Range (NPS)	½" - 3"
7. End Connection	ASME B16.24, FF
8. Pressure Class	max. press 225 psig
9. Temperature	0°C to 75°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B61 (UNS C92200)
12. TRIM Material	N/A
13. Obturator Material	ASTM B62 (UNS C83600)
14. Seat Material	ASTM B62 (UNS C83600)
15. Stem Material	ASTM B62 (UNS C83600)
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Rising Handwheel
18. Stem Construction	outside screw stem
19. Bonnet Construction	union bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirements	N/A

Valve Code	VGL-2500-2-C101	
Specs	H10R	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	2500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	ASTM A182 Gr F6a	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2500-2-C1F1	
Specs	H10P - COPY	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	4" - 12"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	2500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	ASTM A182 Gr F6a	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	Gearbox	
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-2500-2-D201	
Specs	H11 H16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	2500	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F51	
14. Seat Material	ASTM A182 Gr F51	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2500-2-D2F1	
Specs	H16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 3"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	2500	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F51	
14. Seat Material	ASTM A182 Gr F51	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-2510-2-A601	
Specs	H33	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-100°C to 93°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2510-2-C101	
Specs	H10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	ASTM A182 Gr F6a	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2510-2-C1F1	
Specs	H10P H10 - COPY	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	ASTM A182 Gr F6a	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-2510-2-C201	
Specs	H6	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 16"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2510-2-C2F1	
Specs	H6	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 16"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-2510-2-C501	
Specs	H30P H30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 16"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2510-2-C5F1	
Specs	H30P H30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N00718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 16"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-2510-2-D2F1
Specs	H16
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	4" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F51
14. Seat Material	ASTM A182 Gr F51
15. Stem Material	ASTM A276 (UNS S31803)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-2510-2-D301
Specs	H12
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F55
14. Seat Material	ASTM A182 Gr F55
15. Stem Material	ASTM A276 (UNS S32760)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 16" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-2510-2-D3F1
Specs	H12
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F55
14. Seat Material	ASTM A182 Gr F55
15. Stem Material	ASTM A276 (UNS S32760)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 16" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-2510-2-S201
Specs	H3
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 12" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-2510-2-S202
Specs	H3
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	N/A (Low Temperature Stem)
13. Obturator Material	ASTM A182 Gr F316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM B637 (UNS N07718)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 12" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	N/A

Valve Code	VGL-2510-2-S2F1
Specs	H3
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 14"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 14" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-2510-2-S2F2
Specs	H3
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Bevelled Disc
5. Standard	BS 1873
6. Size Range (NPS)	2" - 14"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	N/A (Low Temperature Stem)
13. Obturator Material	ASTM A182 Gr F316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM B637 (UNS N07718)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" Rising Handwheel 3" - 14" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)

Valve Code	VGL-300-1-C101
Specs	C9 C10P C10 C28
1. Valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	API 623
6. Size Range (NPS)	2" - 18"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM CR 13 and HF according BS 1873
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A276 (UNS S41000)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" - 6" Rising Handwheel 8" - 18" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirements	N/A

Valve Code	VGL-300-1-C102
Specs	C4
1. valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	API 623
6. Size Range (NPS)	2" - 18"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM HF according BS 1873
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A276 (UNS S41000)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" - 6" Rising Handwheel 8" - 18" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirements	N/A

Valve Code	VGL-300-1-C201
Specs	C6 C19
1. valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	API 623
6. Size Range (NPS)	2" - 18"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" - 6" Rising Handwheel 8" - 18" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirements	N/A

Valve Code	VGL-300-1-C501
Specs	C30
1. valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	API 623
6. Size Range (NPS)	2" - 20"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Stem Material	ASTM B637 (UNS N07718)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" - 6" Rising Handwheel 8" - 20" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts
22. Notes	N/A
23. Additional Requirements	N/A

Valve Code	VGL-300-1-D201
Specs	C11 C16
1. valve Type	Globe
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	API 623
6. Size Range (NPS)	2" - 18"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Stem Material	ASTM A276 (UNS S31803)
16. Seat-Stem Seal Material	Flexible graphite with inconel wire
17. Operator Type	2" - 6" Rising Handwheel 8" - 18" Gearbox
18. Stem Construction	outside screw stem
19. Bonnet Construction	bolted bonnet
20. Product testing	FAT according A.9.3
21. Coating or Cladding	N/A
22. Notes	N/A
23. Additional Requirements	N/A

Valve Code	VGL-300-1-S201	
Specs	C3.	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-1-U301	
Specs	C23	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Stem Material	ASTM B150 (UNS C63200)	
16. Seat-Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 24"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-C101	
Specs	C9 C10P C10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-C102	
Specs	C4	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-C1F1	
Specs	C9 C10P C10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-C1F2	
Specs	C9 C10P C10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-C201	
Specs	C6 C19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-C2F1	
Specs	C6 C19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-C501	
Specs	C30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-C5F1	
Specs	C30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-D101	
Specs	C11	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A995 Gr 1b	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S32550)	
14. Seat Material	Duplex (UNS S32550)	
15. Stem Material	ASTM A276 (UNS S32550)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-D2F1	
Specs	C16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-D301	
Specs	C12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. TRIM Material	N/A	
13. Obturator Material	Super Duplex (UNS S32760)	
14. Seat Material	Super Duplex (UNS S32760)	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-D3F1	
Specs	C12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. TRIM Material	N/A	
13. Obturator Material	Super Duplex (UNS S32760)	
14. Seat Material	Super Duplex (UNS S32760)	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-S201	
Specs	C3.	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-1-C101	
Specs	E9 E10 E17	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 4"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-1-C102	
Specs	E4	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 4"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-1-C201	
Specs	E6 E19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-1-D201	
Specs	E11 E14 E16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 4"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-1-S201	
Specs	E3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 4"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	316 and Hardfaced	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-2-A501	
Specs	E32	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-100°C to 345°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-2-A5F1	
Specs	E32	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-100°C to 345°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS 70718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3" 4" - 14"	Rising Handwheel Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-600-2-C102	
Specs	E4	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-2-C2F1	
Specs	E6 E19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-600-2-D201	
Specs	E11 E14 E16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-2-C1F1	
Specs	E9 E10 E17	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-600-2-C501	
Specs	E30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-2-D2F1	
Specs	E16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-600-2-C1F2	
Specs	E9 E10 E17	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-600-2-C5F1	
Specs	E30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-600-2-S201	
Specs	E3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	316 and Hardfaced	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-2-C201	
Specs	E6 E19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-600-2-D101	
Specs	E11 E14	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A995 Gr 1b	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S32550)	
14. Seat Material	Duplex (UNS S32550)	
15. Stem Material	ASTM A276 (UNS S32550)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-1-C101	
Specs	F10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 4"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-1-C102	
Specs	F4	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 4"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-1-D201	
Specs	F11 F14 F16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 4"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-1-S201	
Specs	F3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 4"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-2-A501	
Specs	F32	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 345°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-2-A5F1	
Specs	F32	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 345°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-900-2-C101	
Specs	F10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-2-C102	
Specs	F4	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-2-C1F1	
Specs	F10P F10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-900-2-C1F2	
Specs	F10P F10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-900-2-C201	
Specs	F6	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	

Valve Code	VGL-900-2-C501	
Specs	F30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-2-D2F1	
Specs	F16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-900-2-C5F1	
Specs	F30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-900-2-S201	
Specs	F3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-2-D101	
Specs	F11 F14	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A995 Gr 1b	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S32550)	
14. Seat Material	Duplex (UNS S32550)	
15. Stem Material	ASTM A276 (UNS S32550)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-900-2-S2F1	
Specs	F3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-900-2-D201	
Specs	F14 F16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 3"	Rising Handwheel
	4" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	



Valve Code	VRE-10000-2-C725	
Specs	J10	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Swing	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1 ½" – 2"	1 ¹³/₁₆"
	3"	2 ¹/₁₆"
	4"	2 1/₁₆"
	6"	4 ¹/₁₆"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	0°C to 200°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A694 F65	
12. TRIM Material	N/A	
13. Obturator Material	AISI 410	
14. Seat Material	AISI 410	
15. Spring Material	UNS N07750	
16. Shaft Material	ASTM A276 (UNS S41000)	
17. Additional Requirement	N/A	
18. Cover Construction	bolted cover	
19. Product testing	FAT according A.9.3	
20. Cladding or Coating	N/A	
21. Notes	N/A	

Valve Code	VRE-10000-2-D325	
Specs	J12P J12	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Swing	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" – 2"	1 ¹³/₁₆"
	3"	2 ¹/₁₆"
	4"	2 1/₁₆"
	6"	4 ¹/₁₆"
	8" – 10"	7 ¹/₁₆"
	12"	9"
	14"	11"
	16"	13 ¾"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-50°C to 120°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Obturator Material	Super Duplex (UNS S32760)	
14. Seat Material	Super Duplex (UNS S32760)	
15. Spring Material	UNS N06625	
16. Shaft Material	ASTM A276 (UNS S32760)	
17. Additional Requirement	N/A	
18. Cover Construction	bolted cover	
19. Product testing	FAT according A.9.3	
20. Cladding or Coating	N/A	
21. Notes	N/A	

Valve Code	VRE-10000-2-D335	
Specs	J12P J12	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Axial non-slam	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" – 2"	1 ¹³/₁₆"
	3"	2 ¹/₁₆"
	4"	2 1/₁₆"
	6"	4 ¹/₁₆"
	8" – 10"	7 ¹/₁₆"
	12"	9"
	14"	11"
	16"	13 ¾"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-50°C to 120°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Obturator Material	Super Duplex (UNS S32760)	
14. Seat Material	Super Duplex (UNS S32760)	
15. Spring Material	UNS N06625	
16. Shaft Material	ASTM A276 (UNS S32760)	
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
18. Cover Construction	Not Applicable	
19. Product testing	FAT according A.9.3	
20. Cladding or Coating	N/A	
21. Notes	N/A	

Valve Code	VRE-10000-2-N125	
Specs	J40P J40	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Swing	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" – 2"	1 ¹³/₁₆"
	3"	2 ¹/₁₆"
	4"	2 1/₁₆"
	6"	4 ¹/₁₆"
	10"	7 ¹/₁₆"
	12"	9"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-100°C to 200°C	
10. Material Class	Nickel Alloys	
11. Body Material	ASTM B564 (UNS N06625)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM B564 (UNS N06625)	
14. Seat Material	ASTM B564 (UNS N06625)	
15. Spring Material	UNS N06625	
16. Shaft Material	ASTM B637 (UNS N07718)	
17. Additional Requirement	N/A	
18. Cover Construction	bolted cover	
19. Product testing	FAT according A.9.3	
20. Cladding or Coating	N/A	
21. Notes	N/A	

Valve Code	VRE-10000-2-N135	
Specs	J40	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Axial non-slam	
5. Standard	API 6A	
6. Size Range (NPS)	ASME Size	API Size
	1" – 2"	1 ¹³/₁₆"
	3"	2 ¹/₁₆"
	4"	2 1/₁₆"
	6"	4 ¹/₁₆"
	10"	7 ¹/₁₆"
	12"	9"
7. End Connection	API 6A, studded type 6BX (stud and nuts included)	
8. Pressure Class	max. press 10000 psi	
9. Temperature	-100°C to 200°C	
10. Material Class	Nickel Alloys	
11. Body Material	ASTM B564 (UNS N06625)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM B564 (UNS N06625)	
14. Seat Material	ASTM B564 (UNS N06625)	
15. Spring Material	UNS N06625	
16. Shaft Material	ASTM B637 (UNS N07718)	
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
18. Cover Construction	Not Applicable	
19. Product testing	FAT according A.9.3	
20. Cladding or Coating	N/A	
21. Notes	N/A	

Valve Code	VRE-125-1-U511	
Specs	A4	
1. Valve Type	Check, wafer type	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Dual Plate	
5. Standard	API 594	
6. Size Range (NPS)	2" – 24"	
7. End Connection	ASME B16.1, FF	
8. Pressure Class	125	
9. Temperature	0°C to 120°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM A126 CL B	
12. TRIM Material	TRIM AA according API 594	
13. Obturator Material	ASTM B62 (UNS C83600)	
14. Seat Material	Group A (acc. item A.7.3.3.1)	
15. Spring Material	According manufacturer standard, fitted to service conditions	
16. Shaft Material	According manufacturer standard, fitted to service conditions	
17. Additional Requirement	N/A	
18. Cover Construction	Not Applicable	
19. Product testing	FAT according A.9.3	
20. Cladding or Coating	N/A	
21. Notes	wafer valves shall not to be used with flamable services.	

Valve Code	VRE-1500-1-C102	
Specs	F10P F10 G10	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Piston	
5. Standard	API 602	
6. Size Range (NPS)	¾" – 1 ½"	
7. End Connection	socket weld ends ASME B16.11	
8. Pressure Class	1500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM 8 according API 594	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Spring Material	N/A	
16. Shaft Material	Not Applicable	
17. Operator Type	N/A	
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
19. Cover Construction	bolted cover	
20. Product testing	FAT according A.9.3	
21. Notes	N/A	

Valve Code	VRE-1500-1-C103	
Specs	F4 G4	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Piston	
5. Standard	API 602	
6. Size Range (NPS)	¾" – 1 ½"	
7. End Connection	socket weld ends ASME B16.11	
8. Pressure Class	1500	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105	
12. TRIM Material	TRIM 5 according API 594	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Spring Material	N/A	
16. Shaft Material	Not Applicable	
17. Operator Type	N/A	
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
19. Cover Construction	bolted cover	
20. Product testing	FAT according A.9.3	
21. Notes	N/A	

Valve Code	VRE-1500-1-C202	
Specs	F6 G6 G19	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Piston	
5. Standard	API 602	
6. Size Range (NPS)	¾" – 1 ½"	
7. End Connection	socket weld ends ASME B16.11	
8. Pressure Class	1500	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1	
12. TRIM Material	TRIM 12 according API 594	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Spring Material	N/A	
16. Shaft Material	Not Applicable	
17. Operator Type	N/A	
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
19. Cover Construction	bolted cover	
20. Product testing	FAT according A.9.3	
21. Notes	N/A	

Valve Code	VRE-1500-1-D202	
Specs	F16 G16P G16	
1. Valve Type	Check	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Piston	
5. Standard	API 602	
6. Size Range (NPS)	¾" – 1 ½"	
7. End Connection	socket weld ends ASME B16.11	
8. Pressure Class	1500	
9. Temperature	-46°C to 200°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Spring Material	N/A	
16. Shaft Material	Not Applicable	
17. Operator Type	N/A	
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
19. Cover Construction	bolted cover	
20. Product testing	FAT according A.9.3	
21. Notes	N/A	

Valve Code	VRE-1500-1-D203
Specs	F11 F14 G11 G14
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	1" – 1 ½"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-1500-1-N102
Specs	F30 F32 G30
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	1500
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-1500-1-S202
Specs	F3 G3
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	1500
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. TRIM Material	N/A
13. Obturator Material	AISI 316L
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-1500-2-C112
Specs	G10
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-1500-2-C113
Specs	G4
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 10"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-1500-2-C115
Specs	G10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-C135
Specs	G10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 12"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	N/A
13. Obturator Material	AISI 410
14. Seat Material	AISI 410
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-C212
Specs	G6 G19
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-1500-2-C215
Specs	G6 G19
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-C235
Specs	G6
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 210°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-C515
Specs	G30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-D212
Specs	G11 G14 G16P G16
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-1500-2-D215
Specs	G11 G14 G16P G16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-D235
Specs	G16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-29°C to 210°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	ASTM A182 Gr F51
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-D315
Specs	G12
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S32760)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-S202
Specs	F3 G3
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	1500
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. TRIM Material	N/A
13. Obturator Material	AISI 316L
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-1500-2-S212
Specs	G3
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-1500-2-S215
Specs	G3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-1500-2-S235
Specs	G3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	1500
9. Temperature	-100°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07718
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-1-C111
Specs	B9 B10 B17 B28
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 44"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 1 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-C112
Specs	B10
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 44"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-C113
Specs	B4
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-C211
Specs	B6 B19
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 10 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-D111
Specs	B25 B26
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	FF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A995 Gr 1b
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S32550)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	Material suitable only for onshore application. Through holes drilled and tapped according to ASME B1.1.

Valve Code	VRE-150-1-D114
Specs	B11 B26
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 28"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A995 Gr 1b
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S32550)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	Material suitable only for onshore application. Through holes drilled and tapped according to ASME B1.1.

Valve Code	VRE-150-1-D205
Specs	B11
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	N/A
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	N/A
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-150-1-D211
Specs	B11 B16
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-D212
Specs	B11 B26
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 28"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-S211
Specs	B3
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 10 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-S212
Specs	B3
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-U305
Specs	B22 B23
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	1" - 2"
7. End Connection	N/A
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	ASTM B148 (UNS C95800)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	N/A
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-150-1-U311
Specs	B7
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	ASME B16.24, RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N05500
16. Shaft Material	ASTM B150 (UNS C63200)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-U312
Specs	B7 B23
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 48"
7. End Connection	ASME B16.24, RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	ASTM B148 (UNS C95800)
15. Spring Material	UNS N05500
16. Shaft Material	ASTM B150 (UNS C63200)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-1-U314
Specs	B14 B22 B23 B24
1. Valve Type	Check, Wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 48"
7. End Connection	ASME B16.24, FF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N05500
16. Shaft Material	ASTM B150 (UNS C63200)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-2-C112
Specs	B9 B10 B17
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 44"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-2-C113
Specs	B4
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-2-C115
Specs	B9 B10 B17
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 44"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-C135
Specs	B9 B10 B17 B28
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 44"
7. End Connection	RF
	2" - 24" ASME B16.5, RF
	26" - 40" ASME B16.47 Series A, RF
8. Pressure Class	150
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	N/A
13. Obturator Material	AISI 410
14. Seat Material	AISI 410
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-C212
Specs	B6 B19
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-2-C215
Specs	B6 B19
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-C235
Specs	B6 B19
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 210°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-C515
Specs	B30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-150-2-C535
Specs	B30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-150-2-D212
Specs	B11 B16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-2-D215
Specs	B11 B16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-D235
Specs	B11 B16 B26
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-D315
Specs	B12
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S32760)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-D335
Specs	B12
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-N153
Specs	B30
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Swing, spring-loaded, non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	N/A
19. Cover Construction	Not Applicable
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-150-2-S212
Specs	B3
1. Valve Type	Check, Wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-150-2-S215
Specs	B3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-S235
Specs	B3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07718
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-U335
Specs	B14 B23
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 40"
7. End Connection	ASME B16.24, FF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	ASTM B148 (UNS C95800)
15. Spring Material	UNS N05500
16. Shaft Material	Not Applicable
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-150-2-U666
Specs	B14 B27
1. Valve Type	Check, Flanged type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Manufacturer Standard
5. Standard	Manufacturer Standard
6. Size Range (NPS)	2" - 12"
7. End Connection	ASME B16.24, FF
8. Pressure Class	150
9. Temperature	0°C to 70°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM A395 60-40-18 + PFA liner
12. TRIM Material	N/A
13. Obturator Material	PFA
14. Seat Material	PFA
15. Spring Material	According manufacturer standard, fitted to service conditions
16. Shaft Material	Not Applicable
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according manufacturer standard
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-200-1-U122
Specs	A4 B7
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Swing
5. Standard	MSS SP-80
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	Screwed ends ASME B1.20.1 NPT
8. Pressure Class	max. press 200 psig
9. Temperature	0°C to 75°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B62 (UNS C83600)
12. TRIM Material	TRIM AA according API 594
13. Obturator Material	ASTM B62 (UNS C83600)
14. Seat Material	ASTM B62 (UNS C83600)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	N/A
19. Cover Construction	screwed cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-2500-1-C102
Specs	H10R
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	2500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-2500-1-D202
Specs	H16
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-2500-1-D203
Specs	H11
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	Flanged ASME B16.5, RTJ
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-2500-1-N102
Specs	H30 H33
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	2500
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-2500-2-A615
Specs	H33
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 3"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-50°C to 93°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-2500-2-C102
Specs	H10
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	2500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-2500-2-C115
Specs	H10R
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 12"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2500-2-D212
Specs	H11
1. Valve Type	Check, Wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 12"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-2500-2-D215
Specs	H11
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 3"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2500-2-D235
Specs	H11
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 3"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2500-2-D302
Specs	H12
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	2500
9. Temperature	-50°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-2500-2-S202
Specs	H3
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	ASME B16.34 LTD
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	2500
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316L
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-2510-2-A615
Specs	H33
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 93°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A522 Type I + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-2510-2-C112
Specs	H10
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-C115
Specs	H10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-C135
Specs	H10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	N/A
13. Obturator Material	AISI 410
14. Seat Material	AISI 410
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-C213
Specs	H6
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	2500
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-2510-2-C215
Specs	H6
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 200°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-C235
Specs	H6
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-C512
Specs	H30
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-2510-2-C515
Specs	H30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-2510-2-C535
Specs	H30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-2510-2-D212
Specs	H11 H16
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-2510-2-D215
Specs	H11 H16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-D235
Specs	H11 H16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 12"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-D315
Specs	H12
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S32760)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-D335
Specs	H12
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 18"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-50°C to 260°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	ASTM A182 Gr F55
14. Seat Material	ASTM A182 Gr F55
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-N115
Specs	H40
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 6"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	UNS N05500
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	Fato-to-face according API 594.

Valve Code	VRE-2510-2-N135
Specs	H40
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 6"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	UNS N05500
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	Fato-to-face according API 594.

Valve Code	VRE-2510-2-S212
Specs	H3
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-46°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-2510-2-S215
Specs	H3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-2510-2-S235
Specs	H3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	ISO 27509, IX
8. Pressure Class	2500
9. Temperature	-100°C to 210°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07718
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-300-1-C111
Specs	C8 C9 C10 C28
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 1 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-C112
Specs	C10
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-C211
Specs	C6 C19
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 10 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-C512
Specs	C30
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-300-1-D205
Specs	C11
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	N/A
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-300-1-D211
Specs	C11 C16
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-D212
Specs	C11
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-D312
Specs	C12
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-50°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S32760)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-S211
Specs	C3.
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 10 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-U311
Specs	C14 C23
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 28"
7. End Connection	ASME B16.24, RF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N05500
16. Shaft Material	ASTM B150 (UNS C63200)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-U315
Specs	C23 C28
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" – 28"
7. End Connection	ASME B16.24, RF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	ASTM B148 (UNS C95800)
15. Spring Material	UNS N05500
16. Shaft Material	ASTM B150 (UNS C63200)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-2-C113
Specs	C4
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-2-C135
Specs	C4 C9 C10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NP5)	1" - 24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	N/A
13. Obturator Material	AISI 410
14. Seat Material	AISI 410
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-300-2-C215
Specs	C6 C19
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" – 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	ATSI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or coating	N/A
21. Notes	N/A

Valve Code	VRE-300-2-C512
Specs	C30
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel with cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-300-2-C535
Specs	C30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-300-2-D215
Specs	C11 C16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or coating	N/A
21. Notes	N/A

Valve Code	VRE-300-2-D315
Specs	C12
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S32760)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-300-2-D335
Specs	C12
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-300-2-N153
Specs	C30
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Swing, spring-loaded, non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 1 ½"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	Not Applicable
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-300-2-S212
Specs	C3.
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-2-S215
Specs	C3.
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-300-2-U335
Specs	C23 C28
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 28"
7. End Connection	ASME B16.24, FF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	ASTM B148 (UNS C95800)
15. Spring Material	UNS N05500
16. Shaft Material	Not Applicable
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-600-1-C111
Specs	E8 E9 E10 E17
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 4"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 1 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-1-C211
Specs	E6 E19
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 4"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 10 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-1-D211
Specs	E16
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 4"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-1-D214
Specs	E11 E14
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 4"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-2-A515
Specs	E32
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-600-2-A535
Specs	E32
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-600-2-C112
Specs	E8 E9 E10 E17
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	600
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-2-C113
Specs	E4 E10
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-2-C115
Specs	E9 E10 E17
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	600
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-600-2-C135
Specs	E4 E9 E10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	ASME B16.5, RF, RF
8. Pressure Class	600
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	N/A
13. Obturator Material	AISI 410
14. Seat Material	AISI 410
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-600-2-C212
Specs	E6 E19
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 26"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-2-C215
Specs	E6 E19
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 26"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-600-2-C235
Specs	E6 E19
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 26"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 210°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-600-2-C515
Specs	E30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel with cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-600-2-C535
Specs	E30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel with cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-600-2-D212
Specs	E16
1. Valve Type	Check, Wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 18"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-2-D213
Specs	E11 E14
1. Valve Type	Check, Wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-2-D215
Specs	E11 E14 E16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 18"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-600-2-D235
Specs	E16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 12"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-600-2-S212
Specs	E3
1. Valve Type	Check, Wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-2-S215
Specs	E3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-600-2-S235
Specs	E3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	1" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07718
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-800-1-C102
Specs	B10 C8 C10 E8
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	Screwed ends ASME B1.20.1 NPT
8. Pressure Class	800
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-1-C103
Specs	B4 C4 C9 E4
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-1-C202
Specs	B6 B19 C6 C19
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-1-D202
Specs	B16 C16 E16
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-1-D203
Specs	E11 E14
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-1-D302
Specs	B12 C12
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-1-N102
Specs	B30 C30
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-1-S202
Specs	B3 C3.
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. TRIM Material	N/A
13. Obturator Material	AISI 316L
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-C102
Specs	B10 C10
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-C103
Specs	B9 B10 C4
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-C202
Specs	B6 B19 C6 C19 E6 E19
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-D202
Specs	B16 C16
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-D302
Specs	C12
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-N102
Specs	B30 C30 C32 E30 E32
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-S202
Specs	B3 E3 C3.
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. TRIM Material	N/A
13. Obturator Material	AISI 316L
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-900-1-D211
Specs	F11 F14 F16
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" – 4"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-900-1-S211
Specs	F3
1. Valve Type	Check, wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" – 4"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	0°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 10 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-900-2-A515
Specs	F32
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" – 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-900-2-C112
Specs	F10
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-900-2-C113
Specs	F4
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" – 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-900-2-C115
Specs	F10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" – 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 200°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 8 according API 594
13. Obturator Material	AISI 410
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-900-2-C135
Specs	F10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	N/A
13. Obturator Material	AISI 410
14. Seat Material	AISI 410
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-900-2-C212
Specs	F6
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-900-2-C215
Specs	F6
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-900-2-C235
Specs	F6
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 320°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-900-2-C515
Specs	F30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-900-2-D212
Specs	F11 F14 F16
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-900-2-D215
Specs	F11 F14 F16
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Duplex (UNS S31803)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-900-2-S212
Specs	F3
1. Valve Type	Check, wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 260°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	wafer valves shall not to be used with flammable services.

Valve Code	VRE-900-2-S215
Specs	F3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 260°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AISI 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-900-2-S235
Specs	F3
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 18"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 260°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	N/A
13. Obturator Material	AISI 316
14. Seat Material	AISI 316
15. Spring Material	UNS N07718
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-C111
Specs	B4 B9 B10 B28
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. Disc Material	ATSI 410 + ENP (acc. Item A.8.2.1.1)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S41000)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	3" - 6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	Electroless Nickel Plating (ENP)
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-C151
Specs	B10 B28
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. Disc Material	ASTI 410 + ENP (acc. Item A.8.2.1.1)
13. Seat Material	RPTE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S41000)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	3" - 6" Lever 8" - 20" gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	Electroless Nickel Plating (ENP)
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-C231	
Specs	B19	
1. Valve Type	Butterfly, Lug type	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Disc & Seat Configuration	Double Offset, metal-seated	
5. Standard	API 609 Category B	
6. Size Range (NPS)	6" - 20"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-46°C to 250°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. Disc Material	ASTI 316	
13. Seat Material	ASTI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)	
14. Seal Ring	N/A	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	6" 8" - 20"	Lever gearbox
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	N/A	

Valve Code	VBO-150-2-C233
Specs	B19
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, metal-seated
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 40"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 250°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-D111
Specs	B26
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 20"
7. End Connection	ASME B16.5, FF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A995 Gr 1b
12. Disc Material	ASTM A995 Gr 1b
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S32550)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Material suitable only for onshore application. Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-D113
Specs	B26
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 36"
7. End Connection	FF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A995 Gr 1b
12. Disc Material	ASTM A995 Gr 1b
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S32550)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Material suitable only for onshore application. Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-D114
Specs	B25
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 20"
7. End Connection	FF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A995 Gr 1b
12. Disc Material	ASTM A995 Gr 1b
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S32550)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Material suitable only for onshore application. Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-D116
Specs	B25
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 28"
7. End Connection	FF
8. Pressure Class	150
9. Temperature	-29°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A995 Gr 1b
12. Disc Material	ASTM A995 Gr 1b
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Material suitable only for onshore application.

Valve Code	VBO-150-2-D211
Specs	B11 B16
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	3" - 6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-D213
Specs	B11 B16
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 40"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-D251
Specs	B26
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	3" - 6" Lever 8" - 20" Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-D253
Specs	B26
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	wafer valves shall not to be used with flammable or combustible services.

Valve Code	VBO-150-2-D311
Specs	B12
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. Disc Material	Super Duplex (UNS S32760)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S32760)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-D313
Specs	B12
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. Disc Material	Super Duplex (UNS S32760)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S32760)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-S211
Specs	B3
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Disc Material	AISI 316
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	3" - 6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-S213
Specs	B3
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" – 36"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Disc Material	AISI 316
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-S231
Specs	B3
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, metal-seated
5. Standard	API 609 Category B
6. Size Range (NPS)	6" – 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	6" – 8" – 20" Lever Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-S233
Specs	B3
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, metal-seated
5. Standard	API 609 Category B
6. Size Range (NPS)	24" – 42"
7. End Connection	24" – 26" – 42" ASME B16.5, RF ASME B16.47 Series A, RF
8. Pressure Class	150
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-U311
Specs	B23 B24
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	3" – 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	3" – 8" – 20" Lever Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-U313
Specs	B23
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" – 48"
7. End Connection	24" – 26" – 48" ASME B16.5, RF ASME B16.47 Series A, RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-U314
Specs	B14 B22
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	3" – 20"
7. End Connection	ASME B16.5, FF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	3" – 8" – 20" Lever Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-U316
Specs	B14 B22
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" – 36"
7. End Connection	24" – 26" – 36" ASME B16.5, FF ASME B16.47 Series A, FF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-2-U351
Specs	B7 B23
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	3" – 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	3" – 8" – 20" Lever Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-150-2-U353
Specs	B7 B23
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24" – 48"
7. End Connection	24" – 26" – 48" ASME B16.5, RF ASME B16.47 Series A, RF
8. Pressure Class	150
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-150-3-C121
Specs	B10 B28
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	6" – 20"
7. End Connection	ASME B16.5, RF
8. Pressure Class	150
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-C123
Specs	B10 B28
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" – 36"
7. End Connection	24" – 26" – 36" ASME B16.5, RF ASME B16.47 Series A, RF
8. Pressure Class	150
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-C161
Specs	B4 B9 B10
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	6" – 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-C221
Specs	819
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	10" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 240°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-C261
Specs	B6 B19
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	10" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 240°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-D261
Specs	B11 B16
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with Duplex (UNS S31803)
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-D361
Specs	B12
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	10" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A382 Gr F55
12. Disc Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with Super Duplex (UNS S32760)
15. Stem Material	ASTM A276 (UNS S32760)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-S221
Specs	B3
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-100°C to 345°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-S261
Specs	B3
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	RF
8. Pressure Class	150
9. Temperature	-100°C to 345°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-150-3-S263	
Specs	B3	
1. Valve Type	Butterfly, Double Flanged (short pattern)	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Disc & Seat Configuration	Triple Offset, fire tested	
5. Standard	API 609 Category B	
6. Size Range (NPS)	24" - 42"	
7. End Connection	24"	ASME B16.5, RF
	26" - 42"	ASME B16.47 Series A, RF
8. Pressure Class	150	
9. Temperature	-100°C to 345°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Disc Material	AISI 316	
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)	
14. Seal Ring	Graphite Laminated with AISI 316	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Stem Seal Material	Graphite Based Seal	
17. Operator Type	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.	

Valve Code	VBO-150-3-U361	
Specs	B7 B23	
1. Valve Type	Butterfly, Lug type	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Disc & Seat Configuration	Triple offset, fire tested	
5. Standard	API 609 Category B	
6. Size Range (NPS)	3" - 20"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 75°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. Disc Material	ASTM B148 (UNS C95800)	
13. Seat Material	ASTM B148 (UNS C95800) + Metallic Coating (acc. Item A.7.5.4.3.2)	
14. Seal Ring	Solid NAB (UNS C95800)	
15. Stem Material	Monel K500	
16. Stem Seal Material	PTFE	
17. Operator Type	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.	

Valve Code	VBO-150-3-U363	
Specs	B7 B23	
1. Valve Type	Butterfly, Double Flanged (short pattern)	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Disc & Seat Configuration	Triple Offset, fire tested	
5. Standard	API 609 Category B	
6. Size Range (NPS)	24" - 36"	
7. End Connection	RF	
8. Pressure Class	150	
9. Temperature	-29°C to 75°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. Disc Material	ASTM B148 (UNS C95800)	
13. Seat Material	ASTM B148 (UNS C95800) + Metallic Coating (acc. Item A.7.5.4.3.2)	
14. Seal Ring	Solid NAB (UNS C95800)	
15. Stem Material	Monel K500	
16. Stem Seal Material	PTFE	
17. Operator Type	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.	

Valve Code	VBO-150-3-U364	
Specs	B14 B22 B24	
1. Valve Type	Butterfly, Lug type	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Disc & Seat Configuration	Triple Offset, fire tested	
5. Standard	API 609 Category B	
6. Size Range (NPS)	3" - 20"	
7. End Connection	FF	
8. Pressure Class	150	
9. Temperature	-29°C to 75°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. Disc Material	ASTM B148 (UNS C95800)	
13. Seat Material	ASTM B148 (UNS C95800) + Metallic Coating (acc. Item A.7.5.4.3.2)	
14. Seal Ring	Solid NAB (UNS C95800)	
15. Stem Material	Monel K500	
16. Stem Seal Material	PTFE	
17. Operator Type	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.	

Valve Code	VBO-150-3-U366	
Specs	B14 B22	
1. Valve Type	Butterfly, Double Flanged (short pattern)	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Disc & Seat Configuration	Triple Offset, fire tested	
5. Standard	API 609 Category B	
6. Size Range (NPS)	24" - 42"	
7. End Connection	FF	
8. Pressure Class	150	
9. Temperature	-29°C to 75°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. Disc Material	ASTM B148 (UNS C95800)	
13. Seat Material	ASTM B148 (UNS C95800) + Metallic Coating (acc. Item A.7.5.4.3.2)	
14. Seal Ring	Solid NAB (UNS C95800)	
15. Stem Material	Monel K500	
16. Stem Seal Material	PTFE	
17. Operator Type	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.	

Valve Code	VBO-250-1-U204	
Specs	B14 B25	
1. Valve Type	Butterfly, Lug type	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Disc & Seat Configuration	Concentric, trim 1	
5. Standard	API 609 Category A	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, FF	
8. Pressure Class	max. press 250 psig	
9. Temperature	0°C to 75°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM A536 Gr. 65-45-12	
12. Disc Material	ASTM B148 (UNS C95800)	
13. Seat Material	FKM	
14. Seal Ring	N/A	
15. Stem Material	Monel K500	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	2" - 8"	Lever
	10" - 20"	Gearbox
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	Through holes drilled and tapped according to ASME B1.1.	

Valve Code	VBO-250-1-U206	
Specs	B14 B25	
1. Valve Type	Butterfly, double Flanged (short pattern)	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Disc & Seat Configuration	Concentric, trim 1	
5. Standard	API 609 Category A	
6. Size Range (NPS)	24" - 46"	
7. End Connection	ASME B16.47, FF	
8. Pressure Class	max. press 250 psig	
9. Temperature	0°C to 75°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM A536 Gr. 65-45-12	
12. Disc Material	ASTM B148 (UNS C95800)	
13. Seat Material	FKM	
14. Seal Ring	N/A	
15. Stem Material	Monel K500	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	Gearbox	
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	N/A	

Valve Code	VBO-250-1-U284	
Specs	B11	
1. Valve Type	Butterfly, Lug type	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Disc & Seat Configuration	Concentric, trim 3	
5. Standard	API 609 Category A	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.47, RF	
8. Pressure Class	max. press 250 psig	
9. Temperature	0°C to 80°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM A536 Gr. 65-45-12	
12. Disc Material	Super Duplex (UNS S32760)	
13. Seat Material	NBR	
14. Seal Ring	N/A	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	2" - 8"	Lever
	10" - 20"	Gearbox
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	N/A	

Valve Code	VBO-250-1-U286	
Specs	B11	
1. Valve Type	Butterfly, Double Flanged (short pattern)	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Disc & Seat Configuration	Concentric, trim 3	
5. Standard	API 609 Category A	
6. Size Range (NPS)	24" - 28"	
7. End Connection	ASME B16.47, RF	
8. Pressure Class	max. press 250 psig	
9. Temperature	0°C to 80°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM A536 Gr. 65-45-12	
12. Disc Material	Super Duplex (UNS S32760)	
13. Seat Material	NBR	
14. Seal Ring	N/A	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	Gearbox	
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	N/A	

Valve Code	VBO-250-1-U291	
Specs	B3 B9 B10 B23 B28	
1. Valve Type	Butterfly, Lug type	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Disc & Seat Configuration	Concentric, trim 4	
5. Standard	API 609 Category A	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	max. press 250 psig	
9. Temperature	0°C to 75°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM A536 Gr. 65-45-12	
12. Disc Material	ASTM B148 (UNS C95800)	
13. Seat Material	NBR	
14. Seal Ring	N/A	
15. Stem Material	ASTM B150 (UNS C63200)	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	2" - 8"	Lever
	10" - 20"	Gearbox
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	Through holes drilled and tapped according to ASME B1.1.	

Valve Code	VBO-250-1-U293	
Specs	B3 B9 B10 B23 B28	
1. Valve Type	Butterfly, Double Flanged (short pattern)	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Disc & Seat Configuration	Concentric, trim 4	
5. Standard	API 609 Category A	
6. Size Range (NPS)	24" - 46"	
7. End Connection	ASME B16.47, RF	
8. Pressure Class	max. press 250 psig	
9. Temperature	0°C to 75°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM A536 Gr. 65-45-12	
12. Disc Material	ASTM B148 (UNS C95800)	
13. Seat Material	NBR	
14. Seal Ring	N/A	
15. Stem Material	ASTM B150 (UNS C63200)	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	Gearbox	
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	N/A	

Valve Code	VBO-300-2-C111	
Specs	C4 C10 C28	
1. Valve Type	Butterfly, Lug type	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Disc & Seat Configuration	Double Offset	
5. Standard	API 609 Category B	
6. Size Range (NPS)	3" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. Disc Material	ASTI 410 + ENP (acc. Item A.8.2.1.1)	
13. Seat Material	RPTFE	
14. Seal Ring	N/A	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	3" - 6"	Lever
	8" - 20"	Gearbox
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	Electroless Nickel Plating (ENP)	
21. Notes	Through holes drilled and tapped according to ASME B1.1.	

Valve Code	VBO-300-2-C113
Specs	C4 C10 C28
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 40"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 100°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. Disc Material	AISI 316
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-300-2-C131
Specs	C4
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, metal-seated
5. Standard	API 609 Category B
6. Size Range (NPS)	4" - 20"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. Disc Material	AISI 410 + ENP (acc. Item A.8.2.1.1)
13. Seat Material	ASTM B564 (UNS N06625) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S41000)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	4" - 6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	Electroless Nickel Plating (ENP)
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-C133
Specs	C4
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, metal-seated
5. Standard	API 609 Category B
6. Size Range (NPS)	24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. Disc Material	AISI 410 + ENP (acc. Item A.8.2.1.1)
13. Seat Material	ASTM B564 (UNS N06625) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S41000)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	Electroless Nickel Plating (ENP)
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-C511
Specs	C30
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	4" - 14"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel with cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB)
12. Disc Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B637 (UNS N07718)
16. Stem Seal Material	PTFE
17. Operator Type	4" - 6" Lever 8" - 14" Gearbox
18. Additional Requirement	N/A
19. Product testing	FAT according A.9.3
20. Disc Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-C512
Specs	C30
1. Valve Type	Butterfly, Wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	4" - 14"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 100°C
10. Material Class	Carbon Steel
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB)
12. Disc Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B637 (UNS N07718)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	4" - 6" Lever 8" - 14" Gearbox
18. Additional Requirement	N/A
19. Product testing	FAT according A.9.3
20. Disc Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VBO-300-2-C513
Specs	C30
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	4" - 14"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel with cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB)
12. Disc Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B637 (UNS N07718)
16. Stem Seal Material	PTFE
17. Operator Type	4" - 6" Lever 8" - 14" Gearbox
18. Additional Requirement	N/A
19. Product testing	FAT according A.9.3
20. Disc Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VBO-300-2-D211
Specs	C11 C16
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	4" - 24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	4" - 6" Lever 8" - 24" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-D213
Specs	C16
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-300-2-D251
Specs	C11 C16
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	4" - 24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	4" - 6" Lever 8" - 24" Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-D253
Specs	C16
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-D311
Specs	C12
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 20"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. Disc Material	Super Duplex (UNS S32760)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S32760)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	wafer valves shall not to be used with flammable or combustible services.

Valve Code	VBO-300-2-D313
Specs	C12
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. Disc Material	Super Duplex (UNS S32760)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S32760)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-300-2-S251
Specs	C3.
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 12"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. Disc Material	AISI 316
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	3" - 6" Lever 8" - 12" Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-U311
Specs	C23
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	4" - 36"
7. End Connection	4" - 20" ASME B16.5, RF, RF 24" ASME B16.5, RF 26" - 36" ASME B16.47 Series A, RF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	4" - 6" Lever 8" - 36" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-U313
Specs	C23
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 36"
7. End Connection	24" ASME B16.5, RF, RF 26" - 32" ASME B16.47 Series A, RF, RF 36" ASME B16.47 Series A, RF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-300-2-U314
Specs	C14
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	ASME B16.5, FF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	3" - 6" Lever 8" - 20" Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-U316
Specs	C14
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 32"
7. End Connection	FF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	Gearbox
18. Additional Requirement	Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-300-2-U354
Specs	C14
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	ASME B16.5, FF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	3" - 6" Lever 8" - 20" Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Through holes drilled and tapped according to ASME B1.1.

Valve Code	VBO-300-2-U356
Specs	C14
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 32"
7. End Connection	FF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Disc Material	ASTM B148 (UNS C95800)
13. Seat Material	RPTFE
14. Seal Ring	N/A
15. Stem Material	ASTM B574 (UNS N10276)
16. Stem Seal Material	PTFE
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	N/A

Valve Code	VBO-300-3-C161
Specs	C4 C10
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	3" - 20"
7. End Connection	ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-300-3-C163
Specs	C4 C10
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 26"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-300-3-C261
Specs	C6 C19
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	10" - 20"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 240°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-300-3-C263
Specs	C6 C19
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 240°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-300-3-D261
Specs	C11
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 24"
7. End Connection	ASME B16.5, RF 6" - 20" RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with Duplex (UNS S31803)
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-300-3-D361
Specs	C12
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	N/A
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Disc Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with Super Duplex (UNS S32760)
15. Stem Material	ASTM A276 (UNS S32760)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-300-3-D363
Specs	C12
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Disc Material	Super Duplex (UNS S32760)
13. Seat Material	Super Duplex (UNS S32760) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with Super Duplex (UNS S32760)
15. Stem Material	ASTM A276 (UNS S32760)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-600-2-C139
Specs	E4
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Disc & Seat Configuration	Double Offset, metal-seated
5. Standard	API 609 Category B
6. Size Range (NPS)	4" - 24"
7. End Connection	ASME B16.5, RTJ
8. Pressure Class	600
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. Disc Material	AISI 410 + ENP (acc. Item A.8.2.1.1)
13. Seat Material	ASTM B564 (UNS N06625) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	N/A
15. Stem Material	ASTM A276 (UNS S41000)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	4" - 6" Lever 8" - 24" Gearbox
18. Additional Requirement	N/A
19. Product testing	FAT according A.9.3 and HIPPS in place test according A.9.3.7
20. Disc Coating	Electroless Nickel Plating (ENP)
21. Notes	N/A

Valve Code	VBO-600-3-A561
Specs	E32
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 345°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Disc Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM B564 (UNS N06625) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with ASTM B564 (UNS N06625)
15. Stem Material	ASTM B637 (UNS N07718)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-600-3-C161
Specs	E17
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	10" - 20"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-600-3-C163
Specs	E17
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-29°C to 240°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-600-3-D261
Specs	E16
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Disc Material	Duplex (UNS S31803)
13. Seat Material	Duplex (UNS S31803) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with Duplex (UNS S31803)
15. Stem Material	ASTM A276 (UNS S31803)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-600-3-S261
Specs	E3
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 20"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 345°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-600-3-S263
Specs	E3
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	24" - 32"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 345°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-900-3-A567
Specs	F32
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 345°C
10. Material Class	Alloy Steel
11. Body Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Disc Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM B564 (UNS N06625) + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with ASTM B564 (UNS N06625)
15. Stem Material	ASTM B637 (UNS N07718)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-900-3-C267
Specs	F6
1. Valve Type	Butterfly, Lug type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	6" - 20"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-46°C to 340°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

Valve Code	VBO-900-3-S269
Specs	F3
1. Valve Type	Butterfly, Double Flanged (short pattern)
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Disc & Seat Configuration	Triple Offset, fire tested
5. Standard	API 609 Category B
6. Size Range (NPS)	N/A
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 345°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Disc Material	AISI 316
13. Seat Material	AISI 316 + Metallic Coating (acc. Item A.7.5.4.3.2)
14. Seal Ring	Graphite Laminated with AISI 316
15. Stem Material	ASTM A276 (UNS S31600)
16. Stem Seal Material	Graphite Based Seal
17. Operator Type	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.
19. Product testing	FAT according A.9.3
20. Disc Coating	N/A
21. Notes	Acceptance criteria for all HP/LP seat tests (Normative/Supplementary): ISO 5208 Rate A.

A.12.8 PLUG VALVES

Valve Code	VMA-150-2-C101		
Specs	B10		
1. Valve Type	Plug		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Obturator Type	Expanding slips		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 24"		
7. End Connection	ASME B16.5, RF		
8. Pressure Class	150		
9. Temperature	0°C to 110°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A216 Gr WCB		
12. Plug Material	A216 WCB + ENP (acc. Item A.8.2.1.1)		
13. Slips Material	ASTM A395 Gr 60-40-18		
14. Seat Insert Material	FKM Type 2		
15. Spring (Seat) Material	ASTM A216 Gr WCB + ENP (acc. Item A.8.2.1.1)		
16. Stem Seal Material	FKM Type 2		
17. Operator Type	2" - 4"	non rising handwheel	
	6" - 24"	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
19. Body Construction	top entry, bottom entry		
20. Product Testing	FAT according A.9.3		
21. Cladding or Coating	N/A		
22. Notes	N/A		

Valve Code	VMA-300-2-C101		
Specs	C9 C10		
1. Valve Type	Plug		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Obturator Type	Expanding slips		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 24"		
7. End Connection	ASME B16.5, RF		
8. Pressure Class	300		
9. Temperature	0°C to 110°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A216 Gr WCB		
12. Plug Material	A216 WCB + ENP (acc. Item A.8.2.1.1)		
13. Slips Material	ASTM A395 Gr 60-40-18		
14. Seat Insert Material	FKM Type 2		
15. Spring (Seat) Material	ASTM A216 Gr WCB + ENP (acc. Item A.8.2.1.1)		
16. Stem Seal Material	FKM Type 2		
17. Operator Type	2" - 3"	non rising handwheel	
	4" - 24"	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
19. Body Construction	top entry, bottom entry		
20. Product Testing	FAT according A.9.3		
21. Cladding or Coating	N/A		
22. Notes	N/A		

Valve Code	VMA-600-2-C201	
Specs	E6 E19	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-30°C to 110°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A352 Gr LCC	
12. Plug Material	A352 LCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A352 Gr LCB	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A352 Gr LCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-150-2-C201	
Specs	B6 B9	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-30°C to 110°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A352 Gr LCC	
12. Plug Material	A352 LCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A352 Gr LCB	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A352 Gr LCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" – 4"	non rising handwheel
	6" – 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-300-2-C1F1		
Specs	C10		
1. Valve Type	Plug		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Obturator Type	Expanding slips		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 24"		
7. End Connection	ASME B16.5, RF		
8. Pressure Class	300		
9. Temperature	0°C to 110°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A216 Gr WCB		
12. Plug Material	A216 WCB + ENP (acc. Item A.8.2.1.1)		
13. Slips Material	ASTM A395 Gr 60-40-18		
14. Seat Insert Material	FKM Type 2		
15. Spring (Seat) Material	ASTM A216 Gr WCB + ENP (acc. Item A.8.2.1.1)		
16. Stem Seal Material	FKM Type 2		
17. Operator Type	2" - 3"	non rising handwheel	
	4" - 24"	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)		
19. Body Construction	top entry, bottom entry		
20. Product Testing	FAT according A.9.3		
21. Cladding or Coating	N/A		
22. Notes	N/A		

Valve Code	VMA-600-2-S201	
Specs	E3	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 16"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-30°C to 110°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A351 Gr CF8M	
12. Plug Material	A351 CF8M + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A351 Gr CF8M	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A995 Gr 4a	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" – 3"	non rising handwheel
	4" – 16"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-150-2-D301	
Specs	B12	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	0°C to 110°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A995 Gr 6A	
12. Plug Material	A995 6a + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A995 Gr 6a	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A995 Gr 6a	
16. Stem Seal Material	FKM Type 2	
17. Operator Type	2" – 4"	non rising handwheel
	6" – 24"	gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or coating	N/A	
22. Notes	N/A	

Valve Code	VMA-300-2-C201	
Specs	C6 C19	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-30°C to 110°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A352 Gr LCC	
12. Plug Material	A352 LCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A352 Gr LCB	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A352 Gr LCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or coating	N/A	
22. Notes	N/A	

Valve Code	VMA-900-2-C201		
Specs	F6		
1. Valve Type	Plug		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-2		
4. Obturator Type	Expanding slips		
5. Standard	API 6D		
6. Size Range (NPS)	2" - 10"		
7. End Connection	ASME B16.5, RTJ		
8. Pressure Class	900		
9. Temperature	-30°C to 110°C		
10. Material Class	Low-Temperature Carbon Steel		
11. Body Material	ASTM A352 Gr LCC		
12. Plug Material	A352 LCB + ENP (acc. Item A.8.2.1.1)		
13. Slips Material	ASTM A352 Gr LCB		
14. Seat Insert Material	FKM Type 3		
15. Spring (Seat) Material	ASTM A352 Gr LCB + ENP (acc. Item A.8.2.1.1)		
16. Stem Seal Material	FKM Type 3		
17. Operator Type	Gearbox		
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
19. Body Construction	top entry, bottom entry		
20. Product Testing	FAT according A.9.3		
21. Cladding or Coating	N/A		
22. Notes	N/A		

Valve Code	VMA-150-2-S201	
Specs	B3	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" – 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-30°C to 110°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A351 Gr CF8M	
12. Plug Material	A351 CF8M + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A351 Gr CF8M	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A995 Gr 4a	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" – 4"	non rising handwheel
	6" – 24"	gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VAG-3000-1-D302
Specs	B12 C12
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 3000 psi
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	ASTM A182 Gr F55
13. Seat Material	ASTM A182 Gr F55
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	N/A
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-3000-1-S201
Specs	B3 B4 B6 B9 B10 B17 B19 B28 C4 C6 C9 C10P C10 C19 E3 E4 E6 E9 E10 E17 E19 F3 F4 F6 F10 C3.
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 3000 psi
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	Stainless Steel with hardness superior to seat
13. Seat Material	ASTM A 182 Gr F316L
14. Stem Seal Material	PTFE
15. Body Construction	N/A
16. Additional Requirement	N/A
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-300-1-D201
Specs	C11
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	1" - 1 1/2"
7. End Connection	Flange ASME B16.5 (CL300), RF
8. Pressure Class	300
9. Temperature	-50°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	ASTM A182 Gr F51
13. Seat Material	ASTM A182 Gr F51
14. Stem Seal Material	PTFE
15. Body Construction	N/A
16. Additional Requirement	N/A
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-5000-1-D3F2
Specs	G12P G12
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 5000 psi
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	ASTM A182 Gr F55
13. Seat Material	ASTM A182 Gr F55
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-5000-1-S202
Specs	G3 G4 G6 G10 G19
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 5000 psi
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	Stainless Steel with hardness superior to seat
13. Seat Material	ASTM A 182 Gr F316L
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	N/A
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem, stem swirl
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-5000-1-S2F2
Specs	G3 G6 G10 G19
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" – 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 5000 psi
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	Stainless Steel with hardness superior to seat
13. Seat Material	ASTM A 182 Gr F316L
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-6000-1-D3F2
Specs	H12
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	1" - 1 1/2"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	max. pressure 6000 psi
9. Temperature	-50°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	ASTM A182 Gr F55
13. Seat Material	ASTM A182 Gr F55
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-6000-1-N1F2
Specs	H30P H30
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	1" - 1 1/2"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	max. pressure 6000 psi
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-6000-1-S202
Specs	H3 H6 H10P H10 - COPY
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	1" - 1 1/2"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	max. pressure 6000 psi
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	Stainless steel with hardness superior to seat
13. Seat Material	ASTM A 182 Gr F316L
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	N/A
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-6000-1-S2F2
Specs	H3 H10P H10 - COPY
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	1" - 1 1/2"
7. End Connection	butt weld ASME B16.25
8. Pressure Class	max. pressure 6000 psi
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	Stainless steel with hardness superior to seat
13. Seat Material	ASTM A 182 Gr F316L
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

A.12.10 DIAPHRAGM VALVES

Valve Code	VDI-300-2-U301
Specs	B7
1. Valve Type	Diaphragm
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Diaphragm
5. Standard	According Manufacturer Standard
6. Size Range (NPS)	1 1/2" - 12"
7. End Connection	Flanged ASME B16.5 (CL150), RF
8. Pressure Class	max. press 300 psig
9. Temperature	0°C to 80°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. Diaphragm Material	NBR
13. Stem Material	ASTM B150 (UNS C63200)
14. Spring Material	UNS N07750
15. Additional Requirement	Fire safe design (acc. item A.6.1.5)
16. Body Construction	According to Manufacturer Standard
16. Stem Seal Material	N/A
17. Product Testing	FAT according A.9.3
18. Cladding or Coating	N/A
19. Notes	N/A



A.12.11 AXIAL VALVES

Valve Code	VAX-1500-3-D2F1
Specs	G16
Valve Code	VAX-2510-3-D301
Specs	H12 H30
Valve Code	VAX-2510-4-D202
Specs	H16
Valve Code	VAX-2510-4-D302
Specs	H12 H30

Valve Code	VAX-1500-3-S2F1
Specs	G3
Valve Code	VAX-2510-3-D3F1
Specs	H12
Valve Code	VAX-2510-4-D2F1
Specs	H16
Valve Code	VAX-2510-4-D3F1
Specs	H12

Valve Code	VAX-2510-3-D201
Specs	H16
Valve Code	VAX-2510-3-S2F1
Specs	H3
Valve Code	VAX-2510-4-D2F2
Specs	H16
Valve Code	VAX-2510-4-D3F2
Specs	H12

Valve Code	VAX-2510-3-D2F1
Specs	H16
Valve Code	VAX-2510-4-D201
Specs	H16
Valve Code	VAX-2510-4-D301
Specs	H12 H30

A.12.12 BRONZE VALVES

Valve Code	VAN-150-1-U101
Specs	A4 B7
1. Valve Type	Angular Valve
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	MSS SP-80
6. Size Range (NPS)	2 ½"
7. End Connection	Inlet: flange acc. B16.24 - Outlet: Male-threaded acc. NFPA 1693 2,5-7,5 NH
8. Pressure Class	150
9. Temperature	0°C to 75°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B62 (UNS C83600)
12. TRIM Material	N/A
13. Gate Material	ASTM B62 (UNS C83600)
14. Seat Material	ASTM B62 (UNS C83600)
15. Stem Material	According manufacturer standard, fitted to service conditions
16. Stem Seal Material	PTFE
17. Operator Type	Rising Handwheel
18. Additional Requirement	N/A
19. Body Construction	screwed bonnet
20. Product Testing	FAT according A.9.3
21. Cladding or Coating	N/A
22. Stem Design	inside screw stem

Valve Code	VGA-150-1-U102
Specs	B14
1. Valve Type	Gate Valve
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Solid wedge
5. Standard	MSS SP-80
6. Size Range (NPS)	1" - 3"
7. End Connection	Flat Face, ASME B16.24
8. Pressure Class	150
9. Temperature	-29°C to 75°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B62 (UNS C83600)
12. TRIM Material	N/A
13. Gate Material	ASTM B62 (UNS C83600)
14. Seat Material	ASTM B62 (UNS C83600)
15. Stem Material	ASTM B62 (UNS C83600)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	non rising handwheel
18. Additional Requirement	N/A
19. Body Construction	unnion bonnet
20. Product Testing	FAT according A.9.3
21. Cladding or Coating	N/A
22. Stem Design	inside screw stem

Valve Code	VGA-200-1-U101
Specs	A4 B7
1. Valve Type	Gate Valve
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Solid wedge
5. Standard	MSS SP-80
6. Size Range (NPS)	½" - 3"
7. End Connection	Screwed ends, ASME B1.20.1
8. Pressure Class	max. press 200 psig
9. Temperature	-29°C to 75°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B61 (UNS C92200)
12. TRIM Material	N/A
13. Gate Material	ASTM B61 (UNS C92200)
14. Seat Material	ASTM B61 (UNS C92200)
15. Stem Material	ASTM B61 (UNS C92200)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	non rising handwheel
18. Additional Requirement	N/A
19. Body Construction	unnion bonnet
20. Product Testing	FAT according A.9.3
21. Cladding or Coating	N/A
22. Stem Design	inside screw stem

Valve Code	VGL-150-1-U101
Specs	B7
1. Valve Type	Globe Valve
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Bevelled Disc
5. Standard	MSS SP-80
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	Screwed ends, ASME B1.20.1
8. Pressure Class	150
9. Temperature	0°C to 75°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B62 (UNS C83600)
12. TRIM Material	N/A
13. Gate Material	ASTM B62 (UNS C83600)
14. Seat Material	ASTM B62 (UNS C83600)
15. Stem Material	ASTM B62 (UNS C83600)
16. Stem Seal Material	According manufacturer standard, fitted to service conditions
17. Operator Type	Rising Handwheel
18. Additional Requirement	N/A
19. Body Construction	unnion bonnet
20. Product Testing	FAT according A.9.3
21. Cladding or Coating	N/A
22. Stem Design	inside screw stem



Valve Code	VES-150-1-U402
Specs	B21
1. Valve Type	Ball Valve
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Standard	ASTM F1970
5. Size Range (NPS)	2" - 4"
6. End Connection	socket ends
7. Pressure Class	max. press 150 psig
8. Temperature	10°C to 80°C
9. Material Class	Uncommon Materials
10. Body Material	CPVC
11. Obturator Material	CPVC
12. Seat Material	EPDM
13. Stem Material	According manufacturer standard, fitted to service conditions
14. Operator Type	Lever
15. Bore Type	Full Bore
16. Body Construction	N/A
17. Product Testing	FAT according ASTM F1970
18. Notes	For use with temperatures higher than ambient, see item A.7.6.2

Valve Code	VES-250-1-U402
Specs	B21
1. Valve Type	Ball Valve
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Standard	ASTM F1970
5. Size Range (NPS)	½" - 1 ½"
6. End Connection	socket ends
7. Pressure Class	max. press 250 psig
8. Temperature	10°C to 80°C
9. Material Class	Uncommon Materials
10. Body Material	CPVC
11. Obturator Material	CPVC
12. Seat Material	EPDM
13. Stem Material	According manufacturer standard, fitted to service conditions
14. Operator Type	Lever
15. Bore Type	Full Bore
16. Body Construction	N/A
17. Product Testing	FAT according ASTM F1970
18. Notes	For use with temperatures higher than ambient, see item A.7.6.2

Valve Code	VES-275-1-U404
Specs	B26
1. Valve Type	Ball Valve
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Standard	Manufacturer standard
5. Size Range (NPS)	1" - 1 1/2"
6. End Connection	Flanged ASME B16.1, FF
7. Pressure Class	max. press 275 psig
8. Temperature	10°C to 90°C
9. Material Class	Uncommon Materials
10. Body Material	glass-fiber reinforced vinyl ester
11. Obturator Material	Glass Fiber reinforced novolac epoxy
12. Seat Material	Glass fiber reinforced vinyl ester
13. Stem Material	According manufacturer standard, fitted to service conditions
14. Operator Type	Lever
15. Bore Type	Full Bore
16. Body Construction	N/A
17. Product Testing	FAT according manufacturer standard
18. Notes	Any metallic parts used in valve construction and in contact with process fluid shall be made of ASTM B564 (UNS N10276), For use with temperatures higher than ambient, see item A.7.6.2

Valve Code	VRE-150-1-U402
Specs	B21
1. Valve Type	Check Valve
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Standard	ASTM F1970
5. Size Range (NPS)	½" – 6"
6. End Connection	socket ends
7. Pressure Class	max. press 150 psig
8. Temperature	10°C to 80°C
9. Material Class	Uncommon Materials
10. Body Material	CPVC
11. Obturator Material	CPVC
12. Seat Material	EPDM
13. Stem Material	N/A
14. Operator Type	Not Applicable
15. Bore Type	N/A
16. Body Construction	N/A
17. Product Testing	FAT according ASTM F1970
18. Notes	For use with temperatures higher than ambient, see item A.7.6.2

Valve Code	VAGI-6000-1-S202
Specs	T3A T60A
1. Valve Type	Needle valve for instrumentation
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Obturator not solid with stem
5. Valve Standard	Manufacturer Standard
6. Size Range (NPS)	¾" - 1 ½"
7. End Connection	NPT Female
8. Pressure Class	max. pressure 6000 psi
9. Temperature	0°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	Stainless steel with hardness superior to seat
13. Seat Material	ASTM A276 (UNS S31600)
14. Stem Seal	PTFE
15. Operator Type	Lever
16. Stem Construction	inside screw stem
17. Bonnet Construction	union bonnet
18. Product Testing	FAT according manufacturer standard
19. Notes	Device or constructive criterion that avoids accidental disassembly of valve TRIM

Valve Code	VESI-15000-1-S202
Specs	T3B T60B
1. Valve Type	Ball valve for instrumentation
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Floating Ball
5. Valve Standard	Manufacturer Standard
6. Size Range (NPS)	½" – ¾"
7. End Connection	NPT Female
8. Pressure Class	max. press 15000 psi
9. Temperature	0°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316
13. Seat Material	ASTM A276 (UNS S31600)
14. Stem Seal	PTFE
15. Operator Type	Lever
16. Stem Construction	inside screw stem
17. Bonnet Construction	Integral bonnet
18. Product Testing	FAT according manufacturer standard
19. Notes	Device or constructive criterion that avoids accidental disassembly of valve TRIM

Valve Code	VREI-15000-1-S202
Specs	T3B T60B
1. Valve Type	Check valve for instrumentation
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Manufacturer Standard
5. Valve Standard	Manufacturer Standard
6. Size Range (NPS)	½" – ¾"
7. End Connection	NPT Female
8. Pressure Class	max. press 15000 psi
9. Temperature	0°C to 90°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316
13. Seat Material	N/A
14. Stem Seal	N/A
15. Operator Type	Not Applicable
16. Stem Construction	Not Applicable
17. Bonnet Construction	Not Applicable
18. Product Testing	FAT according manufacturer standard
19. Notes	Seal material shall be acc. "Group B" Annex A item A.7.1.5.6. Spring material acc. Manufacturer Standard.

Valve Code	VREI-6000-1-S202
Specs	T3A T60A
1. Valve Type	Check valve for instrumentation
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Manufacturer Standard
5. Valve Standard	Manufacturer Standard
6. Size Range (NPS)	¼" – 1 ½"
7. End Connection	NPT Female
8. Pressure Class	max. pressure 6000 psi
9. Temperature	0°C to 90°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	ATSI 316
13. Seat Material	N/A
14. Stem Seal	N/A
15. Operator Type	Not Applicable
16. Stem Construction	Not Applicable
17. Bonnet Construction	Not Applicable
18. Product Testing	FAT according manufacturer standard
19. Notes	Seal material shall be acc. "Group B" Annex A item A.7.1.5.6. Spring material acc. Manufacturer Standard.



A.12.15 AXIAL CONTROL

Valve Code	VAC-150-1-C111
Specs	B10

Valve Code	VAC-150-1-U311
Specs	B23

OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES

Discipline: Piping

OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES



Valve Code	VES-300-1-C560		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D216		
Specs	C11		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mounting	Trunnion		
	3" - 4"	Floating	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 36"		
7. End Connection	RF		
	3" - 20"	ASME B16.5, RF	
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803)		
13. Seat Material	Duplex (UNS S31803)		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 36"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D260		
Specs	C16H C16		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mounting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating		
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N06625		
16. Stem Material	ASTM A276 (UNS S31803)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 32"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-S210		
Specs	C3H C3 R3C S3C C3.		
1. Valve Type	Ball		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mouting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D / IOGP S-562		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-30°C to 150°C		
10. Material Class	Stainless Steel		
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M		
12. Obturator Material	AISI 316		
13. Seat Material	AISI 316		
14. Seat Insert	PTFE reinforced with 25% Carbon		
15. Spring (Seat) Material	UNS N07718		
16. Stem Material	ASTM A276 (UNS S31600)		
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	N/A		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-C570		
Specs	C30		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-1		
4. Ball Mounting	2" - 4"	Floating	
	6" - 30"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM B637 (UNS N07718)		
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)		
18. Operator Type	2" - 4"	Lever	
	6" - 30"	Gearbox	
19. Additional Requirement	N/A		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
24. Valve Testing	FAT according A.9.3		
25. Notes	N/A		

Valve Code	VES-300-1-D220	
Specs	C16H C16	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803)	
13. Seat Material	Duplex (UNS S31803)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group C (acc. Item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-1-D270	
Specs	C16H C16	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. Obturator Material	Duplex (UNS S31803) + Tungsten carbide coating	
13. Seat Material	Duplex (UNS S31803) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 32"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-1-S220	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-1	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D33F	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-S216	
Specs	C3H C3 C3.	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-S226	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-S23G	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-D33G	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-S21F	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-S230	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-S270	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-S210	
Specs	C3H C3 C3.	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-2-S21G	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-3-D336	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-3-D337	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-3-D33G	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760)	
13. Seat Material	Super Duplex (UNS S32760)	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-3-D352	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-D353	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-D372	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-D373	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-D37G	
Specs	C12H C12	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. Obturator Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
13. Seat Material	Super Duplex (UNS S32760) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N06625	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-S216	
Specs	C3H C3 C3.	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316	
13. Seat Material	AISI 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-3-S217	
Specs	C3H C3 C3.	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AlSi 316	
13. Seat Material	AlSi 316	
14. Seat Insert	PTFE reinforced with 25% Carbon	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. Item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. Item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-300-3-S252	
Specs	C3H C3 C3.	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-S253	
Specs	C3H C3 C3.	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-S25G	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-S262	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 210°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-S263	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 210°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-S272	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	N/A	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-S273	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-3-S27G	
Specs	C3	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mouting	2" - 4"	Floating
	6" - 30"	Trunnion
5. Standard	API 6D	
6. Size Range (NPS)	2" - 30"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-100°C to 200°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. Obturator Material	AISI 316 + Tungsten carbide coating	
13. Seat Material	AISI 316 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07718	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	2" - 4"	Lever
	6" - 30"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A	

Valve Code	VES-300-4-C154	
Specs	C9 C10P C10	
1. Valve Type	Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-4	
4. Ball Mouting	2" - 4"	Floating
	6" - 32"	Trunnion
5. Standard	API 6D / IOGP S-562	
6. Size Range (NPS)	2" - 32"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 + SS316 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	AISI 410 + Tungsten carbide coating	
13. Seat Material	AISI 410 + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Seat-Stem Seal	Group A (acc. item A.7.1.5.6)	
18. Operator Type	Actuated	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	Partial clad - SS316 weld overlay on all body sealing areas	
24. Valve Testing	FAT according A.9.3	
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A	

Valve Code	VES-300-4-C164		
Specs	C9 C10P C10		
1. Valve Type	Ball		
2. Sealing Type	Metal to Metal		
3. Valve Specification Level (VSL)	VSL-4		
4. Ball Mouting	2" - 4"	Floating	
	6" - 32"	Trunnion	
5. Standard	API 6D		
6. Size Range (NPS)	2" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 210°C		
10. Material Class	Carbon Steel		
11. Body Material	ASTM A105 + S5316 weld overlay (acc. item A.7.1.7.3)		
12. Obturator Material	AlSi 410 + Tungsten carbide coating		
13. Seat Material	AlSi 410 + Tungsten carbide coating		
14. Seat Insert	N/A		
15. Spring (Seat) Material	UNS N07750		
16. Stem Material	ASTM A276 (UNS S41000)		
17. Seat-Stem Seal	Group C (acc. item A.7.1.5.6)		
18. Operator Type	Actuated		
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)		
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DBB (notes)		
21. Bore Type	Full Bore		
22. Body Construction	split body, bolted		
23. Cladding or Coating	Partial clad - S5316 weld overlay on all body sealing areas		
24. Valve Testing	FAT according A.9.3		
25. Notes	Acceptance criteria for sealing tests see Annex A, DBB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A		

Valve Code	VES-600-4-C584
Specs	E30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-4
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	6" - 24"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 400°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
13. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Actuated
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: DPE; DIB-2 & DDB (notes)
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	Acceptance criteria for sealing tests see Annex A, DDB tests to be performed at both conditions, fully opened and closed, Vent and drain connections according Annex A

Valve Code	VES-801-1-D201
Specs	B16H B16 C16H C16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D203
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D205
Specs	B16H B16 C16H C16 E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-D305
Specs	B12H B12 C12H C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-N102
Specs	B30 C30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seal Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-N105
Specs	B30 C30 C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-S202
Specs	B3 C3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AlSi 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-S204
Specs	E3H E3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-1-S20A
Specs	A3H
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 500°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AISI 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. Item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D202
Specs	B16H B16 C16H C16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D204
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D2F1
Specs	B16 C16H C16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D2F3
Specs	E16
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D2F5
Specs	B16H B16 C16H C16 E16
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	¾" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Duplex (UNS S31803) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31803)
17. Seat-Stem Seal	Group E (acc. Item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D305
Specs	B12H B12 C12H C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	¾" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-D3F5
Specs	B12H B12 C12H C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

	
Valve Code	VES-801-2-N102
Specs	B30 C30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N105
Specs	B30 C30 C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N107
Specs	B30
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 210°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N1F2
Specs	B30 C30
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N1F4
Specs	C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-46°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-N1F6
Specs	B30 C30 C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 340°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S201
Specs	B3H B3 B51H C3H C3 C3.
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AlSi 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seal Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A



Valve Code	VES-801-2-S2F3
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AlSi 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-2-S2FA
Specs	B3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AlSi 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AlSi 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire tested acc. API 6FA; Fugitive Emission (acc. Item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-D3F5
Specs	B12H B12 C12H C12
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	0°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760) + Hard Coating (acc. item A.7.1.7.4)
13. Seat Material	Super Duplex (UNS S32760) + Hard Coating (acc. item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Seat-Stem Seal	Group D (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-N1F5
Specs	B30 C30 C32 E30 E32
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	ASTM B564 (UNS N06625) + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code		VES-801-3-S203
Specs	E3	
1. Valve Type	Ball	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-3	
4. Ball Mounting	Floating	
5. Standard	ISO 17292	
6. Size Range (NPS)	½" - 1 ½"	
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S	
8. Pressure Class	800	
9. Temperature	-30°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316/F316L	
12. Obturator Material	AISI 316	
13. Seat Material	PEEK	
14. Seat Insert	N/A	
15. Spring (Seat) Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)	
18. Operator Type	Lever	
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	N/A	
21. Bore Type	Full Bore	
22. Body Construction	split body, bolted	
23. Cladding or Coating	N/A	
24. Valve Testing	FAT according A.9.3	
25. Notes	N/A	

Valve Code	VES-801-3-S205
Specs	B3H B3 B51H C3H C3 E3H E3 C3.
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AlSi 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AlSi 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seal Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-S2F1
Specs	B3 C3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AlSi 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-S2F3
Specs	E3
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AlSi 316
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-801-3-S2F5
Specs	B3 C3 E3
1. Valve Type	Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-3
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	¾" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 40S
8. Pressure Class	800
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. Obturator Material	AlSi 316 + Hard Coating (acc. Item A.7.1.7.4)
13. Seat Material	AlSi 316 + Hard Coating (acc. Item A.7.1.7.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. Item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-802-1-C103
Specs	E4
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	800
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AlSi 410
13. Seat Material	PEEK
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S41000)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VES-802-1-C201
Specs	
1. Valve Type	Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Ball Mounting	Floating
5. Standard	ISO 17292
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11 with nipple SCH 80/80S
8. Pressure Class	800
9. Temperature	-30°C to 150°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. Obturator Material	AlSi 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert	N/A
15. Spring (Seat) Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	split body, bolted
23. Cladding or Coating	N/A
24. Valve Testing	FAT according A.9.3
25. Notes	N/A

Valve Code	VDE-300-2-D3F1
Specs	C12H C12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS J532760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-D3F3
Specs	C12H C12
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	Super Duplex (UNS S32760)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S32760)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N101
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N105
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N1F1
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-N1F5
Specs	C30
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. Obturator Material	ASTM B564 (UNS N06625)
13. Seat Material	ASTM B564 (UNS N06625)
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM B637 (UNS N07718)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S201
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-5203
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S204
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-100°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S208
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-100°C to 340°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S205
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S234
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM A276 (UNS S31600)
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" - 8" Gearbox
19. Additional Requirement	N/A
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DBB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Partial clad - Inconel 625 weld overlay on all body sealing areas
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-300-2-S2F3
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S2F4
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-100°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S206
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S2F1
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S2F5
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S207
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	300
9. Temperature	-100°C to 340°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S2F2
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-30°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	PTFE reinforced with 25% Carbon
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-300-2-S2F6
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-100°C to 200°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm



Valve Code	VDE-300-2-S2F8
Specs	C3
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF x NPT 1/2" ASME B1.20.1
8. Pressure Class	300
9. Temperature	-100°C to 340°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. Obturator Material	AISI 316
13. Seat Material	AISI 316
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group F (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-A51F
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-30°C to 150°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Insert	PEEK
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seat-Stem Seal	Group B (acc. item A.7.1.5.6)
18. Operator Type	3" 4" - 8"
	Lever Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE; DDB
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-A571	
Specs	E32	
1. Valve Type	Double Ball	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Ball Mounting	Trunnion	
5. Standard	API 6D	
6. Size Range (NPS)	3" - 8"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 200°C	
10. Material Class	Alloy Steel	
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Tungsten carbide coating	
14. Seat Insert	N/A	
15. Spring (Seat) Material	UNS N07750	
16. Stem Material	ASTM B637 (UNS N07718)	
17. Seat-Stem Seal	Group E (acc. item A.7.1.5.6)	
18. Operator Type	3"	Lever
	4" - 8"	Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE	
21. Bore Type	Full Bore	
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10	
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
24. Valve Testing	FAT according A.9.3	
25. Notes	All materials described in this datasheet are required for both valve. Needle valve between balls for cavity-pressure relief	

Valve Code	VDE-600-2-A581
Specs	E32
1. Valve Type	Double Ball
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Ball Mounting	Trunnion
5. Standard	API 6D
6. Size Range (NPS)	3" - 8"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 340°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
13. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3) + Chrome-Nickel Spray and Fuse (acc. item A.8.2.2.4)
14. Seat Insert	N/A
15. Spring (Seat) Material	UNS N07750
16. Stem Material	ASTM B637 (UNS N07718)
17. Seal-Stem Seal	Group F (acc. item A.7.1.5.6)
18. Operator Type	3" Lever 4" - 8" Gearbox
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	(For trunnion-mounted) Side A: SPE / Side B: SPE
21. Bore Type	Full Bore
22. Body Construction	Compact flangeless single body double ball valve. Face to face according ASME B16.10
23. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
24. Valve Testing	FAT according A.9.3
25. Notes	All materials described in this datasheet are required for both valve, Needle valve between balls for cavity-pressure relief

Valve Code	VDE-600-2-C101
Specs	E10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AlSi 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group B (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VDE-600-2-C103
Specs	E10
1. Valve Type	Double Ball
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Floating
5. Standard	ASME B16.34
6. Size Range (NPS)	½" - 2"
7. End Connection	Flanged ASME B16.5, RF
8. Pressure Class	600
9. Temperature	-29°C to 150°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105
12. Obturator Material	AlSi 410
13. Seat Material	PEEK
14. Seat Insert Material	N/A
15. Spring Material	N/A
16. Stem Material	ASTM A276 (UNS S31600)
17. Stem Seal Material	Group E (acc. item A.7.1.5.6)
18. Operator Type	Lever
19. Additional Requirement	Fire Tested (acc. item A.6.1.4)
20. Seat Type	N/A
21. Bore Type	Full Bore
22. Body Construction	One piece forged body
23. Product Testing	FAT according A.9.3
24. Cladding or Coating	N/A
25. Notes	Needle valve between balls for cavity-pressure relief Max weight 55kg Minimum bore size 10mm

Valve Code	VGA-2510-2-D231	
Specs	H11 H16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	ASTM A182 Gr F51	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2"	non rising handwheel
	3" - 12"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-2510-2-S231	
Specs		
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	N/A	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316/316L	
12. TRIM Material	N/A	
13. Gate Material	ASTM A182 Gr F316L	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	N/A	
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-C131	
Specs	C4H C4 C9 C10H C10 R9C S9C	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-C132	
Specs	C4H C4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. Item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-D231	
Specs	C11H C11 C16H C16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-D331	
Specs	C12H C12	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F55 or A995 6A) + E/ERCoCr	
14. Seat Material	Super Duplex (UNS S32760)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S32760)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-S231	
Specs	C3H C3 R3C S3C C3.	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. Item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-U331	
Specs	C23H C23	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge (NPS>=2), one piece	
5. Standard	API 600	
6. Size Range (NPS)	1" - 24"	
7. End Connection	ASME B16.24, RF	
8. Pressure Class	300	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B150 (UNS C63200)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	1" - 10"	non rising handwheel
	12" - 24"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-1-U332	
Specs	C14	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge (NPS>=2), one piece	
5. Standard	API 600	
6. Size Range (NPS)	1" - 6"	
7. End Connection	ASME B16.24, FF	
8. Pressure Class	300	
9. Temperature	0°C to 90°C	
10. Material Class	Uncommon Materials	
11. Body Material	ASTM B148 (UNS C95800)	
12. TRIM Material	N/A	
13. Gate Material	ASTM B148 (UNS C95800)	
14. Seat Material	ASTM B148 (UNS C95800)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM B150 (UNS C63200)	
17. Stem Seal Material	PTFE	
18. Seat Seal Material	N/A	
19. Operator Type	non rising handwheel	
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-2-C131	
Specs	C4H C4 C9 C10H C10 C28	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-300-2-C132	
Specs	C4H C4 S9C	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP 5-611	
6. Size Range (NPS)	2" - 36"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. Item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 8"	non rising handwheel
	10" - 36"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	



OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES
Discipline: Piping
OFFSHORE PRODUCTION FACILITIES ENGINEERING GUIDELINES

Valve Code	VGA-600-1-D231	
Specs	E11 E14 E16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 16"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-600-2-C132	
Specs	E4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-801-1-D201
Specs	B16H B16 C16H C16 E16

Valve Code	VGA-801-2-C101
Specs	B4 B10H B52H C4H C4

Valve Code	VGA-600-1-S231	
Specs	E3H E3	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 16"	
7. End Connection	RF	
8. Pressure Class	600	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 16"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-801-1-A701
Specs	E34

Valve Code	VGA-801-1-D301
Specs	B12H B12 C12H C12

Valve Code	VGA-801-2-C201
Specs	B19

Valve Code	VGA-600-2-A731	
Specs	E34	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge (NPS>=2), one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	600	
9. Temperature	-29°C to 500°C	
10. Material Class	Alloy Steel	
11. Body Material	ASTM A217 WC9 (UNS J21890)	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 14"	Gearbox
20. Additional Requirement	N/A	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-801-1-C101
Specs	B1 B4 B9H B9 B10H B10 B17 B52H C9 C10H C10P C10 E9 E10 E17 R9B R9C S9B S9C

Valve Code	VGA-801-1-S201
Specs	A3H B3H B3 C3H C3 E3H E3 R3B R3C S3B S3C C3.

Valve Code	VGA-801-2-N101
Specs	B30



Valve Code	VGA-600-2-C131	
Specs	E9 E10 E17	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF, RF	
8. Pressure Class	600	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-801-1-C102
Specs	B4 C4H C4 E4 S9B S9C

Valve Code	VGA-900-1-C131	
Specs	F10	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 24"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 5 according API	
13. Gate Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-900-1-C132	
Specs	F4	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM 8 according API	
13. Gate Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S41000)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 3"	non rising handwheel
	4" - 18"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-900-1-D231	
Specs	F11 F14 F16	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 20"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-50°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Gate Material	(A182 F51 or A995 4A) + E/ERCoCr	
14. Seat Material	Duplex (UNS S31803)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31803)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 3"	non rising handwheel
	4" - 20"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGA-900-1-S231	
Specs	F3H F3	
1. Valve Type	Gate	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Flexible Wedge, one piece	
5. Standard	API 600 / IOGP S-611	
6. Size Range (NPS)	2" - 18"	
7. End Connection	RTJ	
8. Pressure Class	900	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	TRIM 16 according API	
13. Gate Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Seat Insert Material	N/A	
16. Stem Material	ASTM A276 (UNS S31600)	
17. Stem Seal Material	Flexible graphite with Inconel wire	
18. Seat Seal Material	N/A	
19. Operator Type	2" - 3"	non rising handwheel
	4" - 18"	Gearbox
20. Additional Requirement	Fire safe design (acc. item A.6.1.5)	
21. Body Construction	bolted bonnet	
22. Product Testing	FAT according A.9.3	
23. Cladding or Coating	N/A	
24. Stem Design	Rising Stem OS&Y	

Valve Code	VGL-2510-2-D301	
Specs	H12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F55	
14. Seat Material	ASTM A182 Gr F55	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 16"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2510-2-D3F1	
Specs	H12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-50°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F55	
14. Seat Material	ASTM A182 Gr F55	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 16"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-2510-2-S201	
Specs	H3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2510-2-S202	
Specs	H3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 12"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	N/A (Low Temperature Stem)	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 12"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	N/A	

Valve Code	VGL-2510-2-S2F1	
Specs	H3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-46°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-2510-2-S2F2	
Specs	H3	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	BS 1873	
6. Size Range (NPS)	2" - 14"	
7. End Connection	ISO 27509, IX	
8. Pressure Class	2500	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316	
12. TRIM Material	N/A (Low Temperature Stem)	
13. Obturator Material	ASTM A182 Gr F316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2"	Rising Handwheel
	3" - 14"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-1-C101	
Specs	C9 C10H C10P C10 C28 R9C S9C	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM CR 13 and HF according BS 1873	
13. Obturator Material	AISI 410	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-1-C102	
Specs	C4H C4	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-1-C201	
Specs	C6 C19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-1-C501	
Specs	C30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-1-D201	
Specs	C11H C11 C16H C16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-1	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-C1F2	
Specs	C9 C10P C10	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB	
12. TRIM Material	TRIM HF according BS 1873	
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S41000)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-C4F1	
Specs		
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	N/A	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	0°C to 120°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A105 or ASTM A216 Gr WCB + Organic Coating (acc. item A.8.2.3.1)	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	N/A	
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Organic Coating	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-D1F1	
Specs		
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	N/A	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	0°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A995 Gr 1b	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S32550)	
14. Seat Material	Duplex (UNS S32550)	
15. Stem Material	ASTM A276 (UNS S32550)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	N/A	
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-D3F1	
Specs	C12H C12	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A	
12. TRIM Material	N/A	
13. Obturator Material	Super Duplex (UNS S32760)	
14. Seat Material	Super Duplex (UNS S32760)	
15. Stem Material	ASTM A276 (UNS S32760)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-C201	
Specs	C6 C19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-C501	
Specs	C30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 20"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 20"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-D201	
Specs	C11H C11 C16H C16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-S201	
Specs	C3H C3 C3.	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-100°C to 400°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A276 (UNS S31600)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	N/A	

Valve Code	VGL-300-2-C2F1	
Specs	C6 C19	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 345°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC	
12. TRIM Material	N/A	
13. Obturator Material	AISI 316	
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-CSF1	
Specs	C30	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 400°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
12. TRIM Material	N/A	
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Seat-Stem Seal Material	Flexible graphite with inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	Full clad - Inconel 625 weld overlay on all wetted parts	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	

Valve Code	VGL-300-2-D2F1	
Specs	C16H C16	
1. Valve Type	Globe	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Bevelled Disc	
5. Standard	API 623	
6. Size Range (NPS)	2" - 18"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Duplex Steel	
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A	
12. TRIM Material	N/A	
13. Obturator Material	Duplex (UNS S31803)	
14. Seat Material	Duplex (UNS S31803)	
15. Stem Material	ASTM A276 (UNS S31803)	
16. Seat-Stem Seal Material	Flexible graphite with Inconel wire	
17. Operator Type	2" - 6"	Rising Handwheel
	8" - 18"	Gearbox
18. Stem Construction	outside screw stem	
19. Bonnet Construction	bolted bonnet	
20. Product testing	FAT according A.9.3	
21. Coating or Cladding	N/A	
22. Notes	N/A	
23. Additional Requirements	Fugitive Emission (acc. item A.6.1.6)	



Valve Code	VRE-300-1-D211
Specs	C11H C11 C16H C16
1. Valve Type	Check, Wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 32"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	Wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-1-U311
Specs	C14H C14 C23H C23
1. Valve Type	Check, Wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 28"
7. End Connection	ASME B16.24, RF
8. Pressure Class	300
9. Temperature	0°C to 90°C
10. Material Class	Uncommon Materials
11. Body Material	ASTM B148 (UNS C95800)
12. TRIM Material	N/A
13. Obturator Material	ASTM B148 (UNS C95800)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N05500
16. Shaft Material	ASTM B150 (UNS C63200)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	Wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-2-C113
Specs	C4H C4 S9C
1. Valve Type	Check, Wafer type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 24"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 400°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	TRIM 5 according API 594
13. Obturator Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S41000)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	Wafer valves shall not to be used with flammable services.

Valve Code	VRE-300-2-C215
Specs	C6 C19
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1 or ASTM A352 Gr LCC
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AlSi 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07750
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-300-2-C535
Specs	C30
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel with Cladding
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A105 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A



Valve Code	VRE-300-2-D315
Specs	C12H C12
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Super Duplex Steel
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A
12. TRIM Material	N/A
13. Obturator Material	Super Duplex (UNS S32760)
14. Seat Material	Super Duplex (UNS S32760)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S32760)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-300-2-S215
Specs	C3H C3 C3.
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 30"
7. End Connection	RF
8. Pressure Class	300
9. Temperature	-46°C to 150°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AlSi 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	UNS N07718
16. Shaft Material	ASTM A276 (UNS S31600)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VRE-6000-1-S261
Specs	
1. Valve Type	Check
2. Sealing Type	N/A
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Manufacturer Standard
5. Standard	Manufacturer Standard
6. Size Range (NPS)	N/A
7. End Connection	N/A
8. Pressure Class	max. pressure 6000 psi
9. Temperature	0°C to 90°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316
12. TRIM Material	N/A
13. Obturator Material	AlSi 316
14. Seat Material	PTFE
15. Spring Material	According manufacturer standard, fitted to service conditions
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	N/A
19. Cover Construction	Not Applicable
20. Product testing	FAT according manufacturer standard
21. Notes	N/A

Valve Code	VRE-600-1-D211
Specs	E16
1. Valve Type	Check, Wafer type
2. Sealing Type	Soft
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 4"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	0°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A
12. TRIM Material	N/A
13. Obturator Material	Duplex (UNS S31803)
14. Seat Material	Group A (acc. item A.7.3.3.1)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM A276 (UNS S31803)
17. Additional Requirement	N/A
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	Wafer valves shall not to be used with flammable services.

Valve Code	VRE-600-2-A535
Specs	E32
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 16"
7. End Connection	RF
8. Pressure Class	600
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A



Valve Code	VRE-800-1-N102
Specs	B30 C30
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-100°C to 400°C
10. Material Class	Nickel Alloys
11. Body Material	ASTM B564 (UNS N06625)
12. TRIM Material	N/A
13. Obturator Material	ASTM B564 (UNS N06625)
14. Seat Material	ASTM B564 (UNS N06625)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-C202
Specs	B6 B19 C6 C19 E6 E19
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-46°C to 345°C
10. Material Class	Low-Temperature Carbon Steel
11. Body Material	ASTM A350 Gr LF2 CL1
12. TRIM Material	TRIM 12 according API 594
13. Obturator Material	AlSi 316
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-800-2-S202
Specs	B3H B3 B51H C3H C3 E3 C3.
1. Valve Type	Check
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Piston
5. Standard	API 602
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	800
9. Temperature	-100°C to 400°C
10. Material Class	Stainless Steel
11. Body Material	ASTM A182 Gr F316/316L
12. TRIM Material	N/A
13. Obturator Material	AlSi 316L
14. Seat Material	Stellite (Co-Cr Alloy acc. item A.8.2.1.2)
15. Spring Material	N/A
16. Shaft Material	Not Applicable
17. Operator Type	N/A
18. Additional Requirement	Fire safe design (acc. item A.6.1.5)
19. Cover Construction	bolted cover
20. Product testing	FAT according A.9.3
21. Notes	N/A

Valve Code	VRE-900-2-A515
Specs	F32
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Dual Plate
5. Standard	API 594
6. Size Range (NPS)	2" - 16"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-100°C to 400°C
10. Material Class	Alloy Steel
11. Body Material	(ASTM A350 Gr LF3 or ASTM A352 Gr LC3) + Inconel 625 weld overlay (acc. item A.7.1.7.3)
12. TRIM Material	N/A
13. Obturator Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
14. Seat Material	ASTM A350 Gr LF3 + Inconel 625 weld overlay (acc. item A.7.1.7.3)
15. Spring Material	UNS N06625
16. Shaft Material	ASTM B637 (UNS N07718)
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	Full clad - Inconel 625 weld overlay on all wetted parts
21. Notes	N/A

Valve Code	VRE-900-2-C135
Specs	F10
1. Valve Type	Check, Flanged type
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-2
4. Obturator Type	Axial non-slam
5. Standard	API 6D
6. Size Range (NPS)	2" - 24"
7. End Connection	RTJ
8. Pressure Class	900
9. Temperature	-29°C to 210°C
10. Material Class	Carbon Steel
11. Body Material	ASTM A105 or ASTM A216 Gr WCB
12. TRIM Material	N/A
13. Obturator Material	AlSi 410
14. Seat Material	AlSi 410
15. Spring Material	UNS N07750
16. Shaft Material	Not Applicable
17. Additional Requirement	Fire safe design (acc. item A.6.1.5)
18. Cover Construction	Not Applicable
19. Product testing	FAT according A.9.3
20. Cladding or Coating	N/A
21. Notes	N/A

Valve Code	VBO-300-2-C511		
Specs	C30		
1. Valve Type	Butterfly, Lug type		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Disc & Seat Configuration	Double Offset		
5. Standard	API 609 Category B		
6. Size Range (NPS)	4" - 14"		
7. End Connection	ASME B16.5, RF		
8. Pressure Class	300		
9. Temperature	-29°C to 150°C		
10. Material Class	Carbon Steel with Cladding		
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB)		
12. Disc Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)		
13. Seat Material	RPTFE		
14. Seal Ring	N/A		
15. Stem Material	ASTM B637 (UNS N07718)		
16. Stem Seal Material	PTFE		
17. Operator Type	4" - 6"	Lever	
	8" - 14"	Gearbox	
18. Additional Requirement	N/A		
19. Product testing	FAT according A.9.3		
20. Disc Coating	Full clad - Inconel 625 weld overlay on all wetted parts		
21. Notes	Through holes drilled and tapped according to ASME B1.1.		

Valve Code	VBO-300-2-C512	
Specs	C30	
1. Valve Type	Butterfly, Wafer type	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Disc & Seat Configuration	Double Offset	
5. Standard	API 609 Category B	
6. Size Range (NPS)	4" - 14"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 100°C	
10. Material Class	Carbon Steel	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB)	
12. Disc Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	RPTFE	
14. Seal Ring	N/A	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	4" - 6"	Lever
	8" - 14"	Gearbox
18. Additional Requirement	N/A	
19. Product testing	FAT according A.9.3	
20. Disc Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
21. Notes	N/A	

Valve Code	VBO-300-2-C513	
Specs	C30	
1. Valve Type	Butterfly, Double Flanged (short pattern)	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Disc & Seat Configuration	Double Offset	
5. Standard	API 609 Category B	
6. Size Range (NPS)	4" - 14"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-29°C to 150°C	
10. Material Class	Carbon Steel with Cladding	
11. Body Material	(ASTM A105 or ASTM A216 Gr WCB)	
12. Disc Material	AISI 316 + Inconel 625 weld overlay (acc. item A.7.1.7.3)	
13. Seat Material	RPTFE	
14. Seal Ring	N/A	
15. Stem Material	ASTM B637 (UNS N07718)	
16. Stem Seal Material	PTFE	
17. Operator Type	4" - 6"	Lever
	8" - 14"	Gearbox
18. Additional Requirement	N/A	
19. Product testing	FAT according A.9.3	
20. Disc Coating	Full clad - Inconel 625 weld overlay on all wetted parts	
21. Notes	N/A	

Valve Code	VBO-300-2-D211		
Specs	C11H C11 C16H C16		
1. Valve Type	Butterfly, Lug type		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Disc & Seat Configuration	Double Offset		
5. Standard	API 609 Category B		
6. Size Range (NPS)	4" - 24"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Disc Material	Duplex (UNS S31803)		
13. Seat Material	RPTFE		
14. Seal Ring	N/A		
15. Stem Material	ASTM A276 (UNS S31803)		
16. Stem Seal Material	According manufacturer standard, fitted to service conditions		
17. Operator Type	4" - 6"	Lever	
	8" - 24"	Gearbox	
18. Additional Requirement	Dead-end Service per API 609.		
19. Product testing	FAT according A.9.3		
20. Disc Coating	N/A		
21. Notes	Through holes drilled and tapped according to ASME B1.1.		

Valve Code	VBO-300-2-D213		
Specs	C16H C16		
1. Valve Type	Butterfly, Double Flanged (short pattern)		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Disc & Seat Configuration	Double Offset		
5. Standard	API 609 Category B		
6. Size Range (NPS)	24" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Disc Material	Duplex (UNS S31803)		
13. Seat Material	RPTFE		
14. Seal Ring	N/A		
15. Stem Material	ASTM A276 (UNS S31803)		
16. Stem Seal Material	According manufacturer standard, fitted to service conditions		
17. Operator Type	Gearbox		
18. Additional Requirement	Dead-end Service per API 609.		
19. Product testing	FAT according A.9.3		
20. Disc Coating	N/A		
21. Notes	N/A		

Valve Code	VBO-300-2-D251		
Specs	C11H C11 C16H C16		
1. Valve Type	Butterfly, Lug type		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Disc & Seat Configuration	Double Offset, fire tested		
5. Standard	API 609 Category B		
6. Size Range (NPS)	4" - 24"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Disc Material	Duplex (UNS S31803)		
13. Seat Material	RPTFE		
14. Seal Ring	N/A		
15. Stem Material	ASTM A276 (UNS S31803)		
16. Stem Seal Material	According manufacturer standard, fitted to service conditions		
17. Operator Type	4" - 6"	Lever	
	8" - 24"	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.		
19. Product testing	FAT according A.9.3		
20. Disc Coating	N/A		
21. Notes	Through holes drilled and tapped according to ASME B1.1.		

Valve Code	VBO-300-2-D253		
Specs	C16H C16		
1. Valve Type	Butterfly, Double Flanged (short pattern)		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Disc & Seat Configuration	Double Offset, fire tested		
5. Standard	API 609 Category B		
6. Size Range (NPS)	24" - 32"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	-46°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F51 or ASTM A995 Gr 4A		
12. Disc Material	Duplex (UNS S31803)		
13. Seat Material	RPTFE		
14. Seal Ring	N/A		
15. Stem Material	ASTM A276 (UNS S31803)		
16. Stem Seal Material	According manufacturer standard, fitted to service conditions		
17. Operator Type	Gearbox		
18. Additional Requirement	Fire Tested (acc. item A.6.1.4). Dead-end Service per API 609.		
19. Product testing	FAT according A.9.3		
20. Disc Coating	N/A		
21. Notes	Through holes drilled and tapped according to ASME B1.1.		

Valve Code	VBO-300-2-D311		
Specs	C12H C12		
1. Valve Type	Butterfly, Lug type		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Disc & Seat Configuration	Double Offset		
5. Standard	API 609 Category B		
6. Size Range (NPS)	6" - 20"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. Disc Material	Super Duplex (UNS S32760)		
13. Seat Material	RPTFE		
14. Seal Ring	N/A		
15. Stem Material	ASTM A276 (UNS S32760)		
16. Stem Seal Material	According manufacturer standard, fitted to service conditions		
17. Operator Type	6"	Lever	
	8" - 20"	Gearbox	
18. Additional Requirement	Dead-end Service per API 609.		
19. Product testing	FAT according A.9.3		
20. Disc Coating	N/A		
21. Notes	Wafer valves shall not to be used with flammable or combustible services.		

Valve Code	VBO-300-2-D313		
Specs	C12H C12		
1. Valve Type	Butterfly, Double Flanged (short pattern)		
2. Sealing Type	Soft		
3. Valve Specification Level (VSL)	VSL-2		
4. Disc & Seat Configuration	Double Offset		
5. Standard	API 609 Category B		
6. Size Range (NPS)	24" - 30"		
7. End Connection	RF		
8. Pressure Class	300		
9. Temperature	0°C to 150°C		
10. Material Class	Duplex Steel		
11. Body Material	ASTM A182 Gr F55 or ASTM A995 Gr 6A		
12. Disc Material	Super Duplex (UNS S32760)		
13. Seat Material	RPTFE		
14. Seal Ring	N/A		
15. Stem Material	ASTM A276 (UNS S32760)		
16. Stem Seal Material	According manufacturer standard, fitted to service conditions		
17. Operator Type	Gearbox		
18. Additional Requirement	Dead-end Service per API 609.		
19. Product testing	FAT according A.9.3		
20. Disc Coating	N/A		
21. Notes	N/A		

Valve Code	VBO-300-2-S211	
Specs	C3	
1. Valve Type	Butterfly, Lug type	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Disc & Seat Configuration	Double Offset	
5. Standard	API 609 Category B	
6. Size Range (NPS)	3" - 20"	
7. End Connection	RF	
8. Pressure Class	300	
9. Temperature	-46°C to 150°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A182 Gr F316 or ASTM A351 Gr CF8M	
12. Disc Material	AISI 316	
13. Seat Material	RPTFE	
14. Seal Ring	N/A	
15. Stem Material	ASTM A564 Type 630 H1150 (UNS S17400)	
16. Stem Seal Material	According manufacturer standard, fitted to service conditions	
17. Operator Type	3" - 6"	Lever
	8" - 20"	Gearbox
18. Additional Requirement	Dead-end Service per API 609.	
19. Product testing	FAT according A.9.3	
20. Disc Coating	N/A	
21. Notes	N/A	



Valve Code	VMA-150-2-C101	
Specs	B10	
1. Valve Type	Plug	
2. Sealing Type	Soft	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	0°C to 110°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A216 Gr WCB	
12. Plug Material	A216 WCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A395 Gr 60-40-18	
14. Seat Insert Material	FKM Type 2	
15. Spring (Seat) Material	ASTM A216 Gr WCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 2	
17. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-300-2-C101	
Specs	C9 C10	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	0°C to 110°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A216 Gr WCB	
12. Plug Material	A216 WCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A395 Gr 60-40-18	
14. Seat Insert Material	FKM Type 2	
15. Spring (Seat) Material	ASTM A216 Gr WCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 2	
17. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. Item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-600-2-C101	
Specs	E9 E10	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	0°C to 110°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A216 Gr WCB	
12. Plug Material	A216 WCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A395 Gr 60-40-18	
14. Seat Insert Material	FKM Type 2	
15. Spring (Seat) Material	ASTM A216 Gr WCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 2	
17. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. Item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-900-2-S201	
Specs	F3	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 10"	
7. End Connection	ASME B16.5, RTJ	
8. Pressure Class	900	
9. Temperature	-30°C to 110°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A351 Gr CF8M	
12. Plug Material	A351 CF8M + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A351 Gr CF8M	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A995 Gr 4a	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	Gearbox	
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-150-2-C201	
Specs	B6 B9	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-30°C to 110°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A352 Gr LCC	
12. Plug Material	A352 LCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A352 Gr LCB	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A352 Gr LCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-300-2-C1F1	
Specs	C10	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	0°C to 110°C	
10. Material Class	Carbon Steel	
11. Body Material	ASTM A216 Gr WCB	
12. Plug Material	A216 WCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A395 Gr 60-40-18	
14. Seat Insert Material	FKM Type 2	
15. Spring (Seat) Material	ASTM A216 Gr WCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 2	
17. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4); Fugitive Emission (acc. item A.6.1.6)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-600-2-C201	
Specs	E6 E19	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-30°C to 110°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A352 Gr LCC	
12. Plug Material	A352 LCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A352 Gr LCB	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A352 Gr LCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-150-2-D301	
Specs	B12H B12	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	0°C to 110°C	
10. Material Class	Super Duplex Steel	
11. Body Material	ASTM A995 Gr 6A	
12. Plug Material	A995 6a + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A995 Gr 6a	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A995 Gr 6a	
16. Stem Seal Material	FKM Type 2	
17. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-300-2-C201	
Specs	C6 C19	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	300	
9. Temperature	-30°C to 110°C	
10. Material Class	Low-Temperature Carbon Steel	
11. Body Material	ASTM A352 Gr LCC	
12. Plug Material	A352 LCB + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A352 Gr LCB	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A352 Gr LCB + ENP (acc. Item A.8.2.1.1)	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" - 3"	non rising handwheel
	4" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-600-2-S201	
Specs	E3	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 16"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	600	
9. Temperature	-30°C to 110°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A351 Gr CF8M	
12. Plug Material	A351 CF8M + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A351 Gr CF8M	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A995 Gr 4a	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" - 3"	non rising handwheel
	4" - 16"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VMA-150-2-S201	
Specs	B3	
1. Valve Type	Plug	
2. Sealing Type	Metal to Metal	
3. Valve Specification Level (VSL)	VSL-2	
4. Obturator Type	Expanding slips	
5. Standard	API 6D	
6. Size Range (NPS)	2" - 24"	
7. End Connection	ASME B16.5, RF	
8. Pressure Class	150	
9. Temperature	-30°C to 110°C	
10. Material Class	Stainless Steel	
11. Body Material	ASTM A351 Gr CF8M	
12. Plug Material	A351 CF8M + ENP (acc. Item A.8.2.1.1)	
13. Slips Material	ASTM A351 Gr CF8M	
14. Seat Insert Material	FKM Type 3	
15. Spring (Seat) Material	ASTM A995 Gr 4a	
16. Stem Seal Material	FKM Type 3	
17. Operator Type	2" - 4"	non rising handwheel
	6" - 24"	Gearbox
18. Additional Requirement	Fire Tested (acc. item A.6.1.4)	
19. Body Construction	top entry, bottom entry	
20. Product Testing	FAT according A.9.3	
21. Cladding or Coating	N/A	
22. Notes	N/A	

Valve Code	VAG-5000-1-D2F2
Specs	G16P G16
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 5000 psi
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	ASTM A182 Gr F51
13. Seat Material	ASTM A182 Gr F51
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	Fugitive Emission (acc. Item A.6.1.6)
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swirl
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-5000-1-D302
Specs	G12P G12
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 5000 psi
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	ASTM A182 Gr F55
13. Seat Material	ASTM A182 Gr F55
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	N/A
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-5000-1-D3F2
Specs	G12P G12
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 5000 psi
9. Temperature	-46°C to 150°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F55
12. Obturator Material	ASTM A182 Gr F55
13. Seat Material	ASTM A182 Gr F55
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	Fugitive Emission (acc. item A.6.1.6)
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

Valve Code	VAG-5000-1-D202
Specs	G16H G16P G16
1. Valve Type	Needle
2. Sealing Type	Metal to Metal
3. Valve Specification Level (VSL)	VSL-1
4. Obturator Type	Rising Plug
5. Standard	ASME 16.34 LTD
6. Size Range (NPS)	½" - 1 ½"
7. End Connection	socket weld ends ASME B16.11
8. Pressure Class	max. pressure 5000 psi
9. Temperature	-46°C to 200°C
10. Material Class	Duplex Steel
11. Body Material	ASTM A182 Gr F51
12. Obturator Material	ASTM A182 Gr F51
13. Seat Material	ASTM A182 Gr F51
14. Stem Seal Material	Graphoil
15. Body Construction	N/A
16. Additional Requirement	N/A
17. Operator Type	Rising Handwheel
18. Stem Design	rising stem, inside screw stem; Stem swivel
19. Product testing	FAT according A.9.3
20. Coating or Cladding	N/A
21. Notes	N/A

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
ANNEX B PIPES FITTINGS ACESSORIES (Mandatory)			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 2 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
TABLE OF CONTENTS B.1 SCOPE..... 3 B.2 NORMATIVE REFERENCES 3 B.3 PIPES AND TUBES..... 5 B.4 FITTINGS 5 B.5 NIPPLES..... 7 B.6 FLANGES 8 B.7 GASKETS 9 B.8 BOLTS AND NUTS..... 11 B.9 ZINCK-NICKEL COATING REQUIREMENTS 11 B.10 ALTEERNATIVE MATERIALS..... 11 B.11 DATASHEETS..... 13			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 3 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

B.1 SCOPE

This document defines requirements and material data sheets for pipes, fittings, flanges, gaskets, and bolts, for use in Exploration and Production (E&P) business area, onshore and offshore, especially in oil and gas production and process facilities.

B.2 NORMATIVE REFERENCES

Note: The Standards referred herein shall be considered in their latest edition/revision.

ABNT NBR 5648 -Tubos e Conexões de PVC-U com Junta Soldável para Sistemas Prediais de Água Fria;
API SPEC 6A - Specification for Wellhead and Christmas Tree Equipment;
API SPEC 5L - Specification for Line Pipe;
ASME B1.1 - Unified Inch Screw Threads (UN and UNR Thread Form);
ASME B1.20.1 - Pipe Threads, General Purpose (Inch);
ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings Classes 25, 125 and 250;
ASME B16.5 - Pipe Flanges and Flanged Fittings NPS 1/2 through NPS 24 Metric/Inch Standard;
ASME B16.9 - Factory-Made Wrought Steel Butt-Welding Fittings;
ASME B16.11 - Forged Fittings, Socket-Welding and Threaded;
ASME B16.14 - Ferrous Pipe Plugs, Bushings and Locknuts with Pipe Threads;
ASME B16.15 - Cast Copper Alloy Threaded Fitting Classes 125 and 250;
ASME B16.20 - Metallic Gaskets for Pipe Flanges Ring-Joint, Spiral-Wound and Jacketed;
ASME B16.21 - Nonmetallic Flat Gaskets for Pipe Flanges;
ASME B16.25 - Buttwelding Ends;
ASME B16.39 - Malleable Iron Threaded Pipe Unions Classes 150, 250 and 300;
ASME B16.47 - Large Diameter Steel Flanges NPS 26 through NPS 60 Metric/Inch Standard;
ASME B18.2.1 - Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head and Lag Screws (Inch Series);
ASME B18.2.2 - Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series);
ASME B31.3 - Process Piping;
ASME B31.4 - Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids;
ASME B31.8 - Gas Transmission and Distribution Piping Systems;
ASME B36.10 - Welded and Seamless Wrought Steel Pipe;
ASME B36.19 - Stainless Steel Pipe;
ASME BPVC Section VIII, Division I - Rules for Construction of Pressure Vessels;
ASTM A105/A105M - Standard Specification for Carbon Steel Forgings for Piping Applications;
ASTM A126 - Standard Specification for Gray Iron castings for Valves, Flanges, and Pipe Fittings;
ASTM A182/A182M - Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service;
ASTM A193/A193M - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature Service or High Pressure Service and other Special Purpose Applications;

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 4 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL
ASTM A194/A194M - Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both; ASTM A312/A312M - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes; ASTM A320/A320M - Standard Specification for Alloy-Steel and Stainless Steel Bolting for Low-Temperature Service; ASTM A333/A333M - Standard Specification for Seamless and Welded Steel Pipe for Low-Temperature Service; ASTM A335/A335M - Standard Specification for Seamless Ferritic Alloy-Steel Pipe for High-Temperature Service; ASTM A350/A350M - Standard Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components; ASTM A358/A358M - Standard Specification for Electric-Fusion-Welded Austenitic Chromium-Nickel Stainless Steel Pipe for High-Temperature Service and General Applications; ASTM A671/A671M - Standard Specification for Electric-Fusion-Welded Steel Pipe for Atmospheric and Lower Temperatures; ASTM A672/A672M - Standard Specification for Electric-Fusion-Welded Steel Pipe for High-Pressure Service at Moderate Temperatures; ASTM A733 - Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples; ASTM B841 - Standard Specification for Electrodeposited Coatings of Zinc Nickel Alloy Deposits ASTM B849 - Standard Specification for Pre-Treatments of Iron or Steel for Reducing Risk of Hydrogen Embrittlement ASTM B850 - Standard Guide for Post-Coating Treatments of Steel for Reducing the Risk of Hydrogen Embrittlement ASTM F 1378 - Standard specification for performance of piping and tubing mechanically attached fittings ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings; EEMUA 144 - 90/10 copper nickel alloy piping for offshore applications – specification: tubes seamless and welded EEMUA 145 - 90/10 copper nickel alloy piping for offshore applications – specification: flanges composite and solid EEMUA 146 - 90/10 copper nickel alloy piping for offshore applications – specification: fittings MSS SP-6 - Standard Finishes for Contact Faces of Pipe Flanges and Connecting - End Flanges of Valves and Fittings; MSS SP-43 - Wrought and Fabricated Butt-Welding Fittings for Low Pressure, Corrosion Resistant Applications; MSS SP-83 - Class 3 000 Steel Pipe Unions, Socket Welding and Threaded; MSS SP-95 - Swage (d) Nipples and Bull Plugs; MSS SP-97 - Integrally Reinforced Forged Branch Outlet Fittings - Socket Welding, Threaded and Buttwelding Ends. ISO 27509 - Petroleum and natural gas industries – compact flanged connections with IX seal ring				

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 5 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP INTERNAL	

B.3 PIPES AND TUBES

B.3.1 IDENTIFICATION CODE

Each pipe datasheet is identified by a code which follow the rule below:

T-XXX

Where:

X - Pipe material code, according to Table B.1.

YY - Sequential number.

Table B.1 - Pipe materials codes

Material	Code X
CARBON STEEL	1
ALLOYS AND ALLOY STEELS	2
STAINLESS STEEL	3
NON METTALICS	4

B.3.2 GENERAL INFORMATION

B.3.2.1. Shall not be used the following diameters (NPS): 3 ½, 5 and 22. NPS 1 ¼ and 2 ½ may be used only in non- metallic piping and fittings.

B.3.2.2. To reduce the number of flange connections, the minimum piping diameter is NPS 1 for organic coat specs (11 and 14 group).

B.3.2.3 The organic coating shall be according to I-ET-3010.00-1200-956-P4X-002.

B.3.2.4 Specs with Inconel clad pipes shall have monolithic pipes under NPS 4. For NPS 4 and greater the Inconel cladding shall be according to I-ET-3010.00-1200-955-P4X-001.

B.3.2.5 The thickness calculation for piggable specs is according to ASME B31.4/B31.8 for NPS equal and greater than NPS 4. Under NPS 4 the thickness is according to ASME B31.3.

B.4 FITTINGS

B.4.1 IDENTIFICATION CODE

Each fitting datasheet is identified by a code which follow the rule below:

CXX.Y-ZZ

Where:

XX - Fitting type, according to Table B.2.

Y - Sequential number to use when necessary.

ZZ - Fitting material codes according to Table B.3.

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 6 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL

Table B.2 - Codes of fittings.

Fitting type	Code CXX.Y	Fitting type	Code CXX.Y	Fitting type	Code CXX.Y
Elbow 90°	C01	Reduction Bushing	C23	Flanged Saddle	C51
Elbow 45°	C02	Cross (B16.9)	C24	Threaded Saddle Flg	C52
Tee	C03	Elbow 45° 3D Radius	C33	Reduction Cross	C53
Reduction Tee	C04	Elbow 45° 5D Radius	C34	Thredolet	C54
Cross	C05	Elbow 90° 3D Radius	C35	Socketlet	C55
Coupling	C06	Elbow 90° 5D Radius	C36	Reducer Bushing	C56
Half Coupling	C07	Connector	C37	Sweepolet	C57
Reduction Coupling	C08	Union Connector	C38	Y Tee - 30 Deg	C58
Plug	C09	Stub End type L	C39	Reduction Y Tee - 30 Deg	C59
Union	C10	Elbow 45° - MAF	C40	Cap Threade End	C60
Cap	C11	Elbow 90° - MAF	C41	Elbow 45° SR	C61
Weldolet	C12	Coupling - MAF	C42	Flanged Nipolet	C62
Elbow 90° LR (B16.9)	C15	Tee - MAF	C43	Socket saddle	C63
Elbow 45° LR (B16.9)	C16	Union - MAF	C44	Cap with T-bar and Chain	C64
Elbow 90° SR (B16.9)	C17	Cap - MAF	C45	Lateral Tee	C65
Reduction Concentric (B16.9)	C18	Union – Plain seat type with isolation gasket	C46	Flange Cover	C66
Reduction Eccentric (B16.9)	C19	Union – Flexible lug nut type	C47	Fabricated Tee (Socket)	C67
Tee (B16.9)	C20	45° Tee	C48	Fabricated Tee (Flanged)	C68
Reduction Tee (B16.9)	C21	22°30' Elbow	C49		
Cap (B16.9)	C22	11°15' deg Elbow	C50		

Table B.3 - Materials codes for fittings.

Material	Code ZZ	Material	Code ZZ	Material	Code ZZ
ASTM A105	02	ASTM A790 (UNS S32760)	31	A182 F316/316L	49
ASTM A234 Gr WPB	03	ASTM A815 (UNS S32760)	32	PVC - ASTM D1784 class 12454	50
ASTM A350 Gr LF2 Cl 1	04	ASTM B366 (UNS N06625)	33	CPVC - ASTM D1784 class 23447	51
ASTM A420 Gr WPL6	05	Cu-Ni 70/30	34	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C	52
ASTM A420 Gr WPL3	11	Cu-Ni 90/10 (UNS C7060X)	35	FRP - Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C	53
ASTM A182 Gr F316L	14	ASTM B62 (UNS C83600)	36	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C	54
ASTM A403 Gr WP316L	15	ASTM A333 Gr 6	37	FRP - Bisphenol A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C	55
API 5L Gr B PSL 1	20	ASTM A312 TP316L	38	FRP - MDA cured Bisphenol A Epoxy resin with type E or E-CR.	56
API 5L Gr X65 PSL 2	21	ASTM B444 Gr 1 (UNS N06625)	39	FRP - Epoxy vinylester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C	57
ASTM A860 WPHY65	22	AISI 316	40	RPVC - Glass fiber reinforced PVC	58
ASTM A333 Gr 8	23	ASTM A928 (UNS S32760 Cl 1 or 3)	41	RPVC - Glass fiber reinforced PVC	59
ASTM A420 Gr WPL8	24	ASTM A928 (UNS S31803 Cl 1 or 3)	42	RPVC - Glass fiber reinforced PVC	60
ASTM A522 Type I	25	ASTM A182 Gr F316/316L	43	ASTM A182 Gr F310H	62
ASTM A182 Gr F316	26	ASTM A403 Gr WP316/316L	44	ASTM A403 Gr WP310H	63
ASTM A182 Gr F51 (UNS S31803)	27	ASTM A312 TP316/316L	45	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C	64
ASTM A790 (UNS S31803)	28	ASTM A358 TP316/316L	46	ASTM A234 Gr WP22 Cl 3 (UNS K21590)	65

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 7 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

ASTM A815 (UNS S31803)	29	SuperDuplex UNS 32760	47	ASTM A182 Gr F22 Cl 3 (K21590)	66
ASTM A182 Gr F55 (UNS S32760)	30	Mariloy S-400 (JIS G3454/57)	48		

B.4.2 GENERAL INFORMATION

B.4.2.1. Maximum allowed thickness reduction for 3D and 5D pipe bends are 15% and 10%, respectively.

B.4.2.2. The organic coating shall be according to I-ET-3010.00-1200-956-P4X-002.

B.4.2.3. The Inconel cladding shall be according to I-ET-3010.00-1200-955-P4X-001

B.5 NIPPLES

B.5.1 IDENTIFICATION CODE

Each nipple datasheet is identified by a code which follow the rule below:

N-XXYY

Where:

XX - Code that identify the relation of nipple types with end type, according to Table B.4.

YY - Nipple material code, according to Table B.5.

Table B.4 - Nipple type and material.

Code XX								
END	PE	BE	TE	BE x PE	BE x TE	MAF	Female TE X Male Capilar	Male TE X Male Capilar
TYPE								
CONCENTRIC	C1	C2	C3	C4	C5	C6	-	-
ECCENTRIC	E1	E2	E3	E4	E5	-	-	-
STRAIGHT	S1	S2	S3	-	-	-	-	-
CONNECTOR	-	-	A3	-	-	-	A7	A8

Table B.5 - Materials codes for nipples.

Material	Code ZZ	Material	Code ZZ	Material	Code ZZ
ASTM A105	2	ASTM A182 Gr F51 (UNS S31803)	27	ASTM A312 TP310H	41
ASTM A234 Gr WPB	3	ASTM A790 (UNS S31803)	28	ASTM A182 Gr F316/316L	43
ASTM A350 Gr LF2 Cl 1	4	ASTM A815 (UNS S31803)	29	ASTM A403 Gr WP316/316L	44
ASTM A420 Gr WPL6	5	ASTM A182 Gr F55 (UNS S32760)	30	ASTM A312 TP316/316L	45
ASTM A420 Gr WPL3	11	ASTM A790 (UNS S32760)	31	PVC - ASTM D1785 class 1120	50
ASTM A182 Gr F316L	14	ASTM A815 (UNS S32760)	32	CPVC - ASTM F441 class 4120	51
ASTM A403 Gr WP316L	15	ASTM B366 (UNS N06625)	33	RPVC-Glass fiber reinforced PVC	52
API 5L Gr B PSL 1 seamless	20	Cu-Ni 70/30	34	FRP - Epoxy vinylester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C.	53

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 8 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

API 5L Gr X65 PSL 2	21	Cu-Ni 90/10 (UNS C7060X)	35	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C.	54
ASTM A860 WPHY65	22	ASTM B62 (UNS C83600)	36	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.	55
ASTM A333 Gr 8	23	ASTM A333 Gr 6	37	FRP - MDA cured Bisphenol A Epoxy resin with type E or E-CR.	56
ASTM A420 Gr WPL8	24	ASTM A312 TP316L	38	ASTM A335 P22 (UNS K21590) SML	58
ASTM A522 Type I	25	ASTM B444 Gr 1 (UNS N06625)	39		
ASTM A182 Gr F316	26	ASTM A312 Grade TP 316, SC, ASTM A733	40		

B.6 FLANGES

B.6.1 IDENTIFICATION CODE

Each flange datasheet is identified by a code which follow the rule below:

F-class-XY

Where:

Class – Pressure class, according to Table B.6.

X – Code that identify the relation of flange face with flange type, according to Table B.7.

Y – Flange material codes according to Table B.8

Table B.6 – Standards for each flange pressure class.

Class	Standard
125	ASME B.16.1
150	ASME B16.5 ou B16.47
300	ASME B16.5 ou B16.47
600	ASME B16.5 ou B16.47
900	ASME B16.5 ou B16.47
1500	ASME B16.5
2500	ASME B16.5 ou ISO 27509
10000	API 6A
20	EEMUA
16	D4024
25	D4024

Table B.7 - Code for flange face and type.

Code X											
Face Type	Flange type										
	THD	SO	SW	WN	BL	OR	RJ	EJ	BF	MAF	INT
FF	A	B	C	D	E	F	W	X			1
RF	G	H	J	K	L	M			Y	Z	
RTJ	N	P	Q	R	S	T					
MSJ				U	V						

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 9 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

Table B.8 - Materials codes for flanges.

Material	Code Y	Material	Code Y	Material	Code Y
ASTM A105 Galvanized	1	ASTM A694 Gr F65	C	PVC - ASTM D1784 class 12454	P
ASTM A105	2	ASTM A694 Gr F65 Cladded	D	CPVC-Chlorinated polyvinyl chloride, ASTM D1784 class 23447	Q
ASTM A350 Gr LF2 Class 1	3	ASTM A350 Gr LF3 Cladded	E	RPVC-Glass fiber reinforced PVC	R
ASTM A182 Gr F5	4	ASTM A182 Gr F316	F	FRP - Epoxy vinylester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR. Suitable for 85°C.	S
ASTM A350 Gr LF3	5	ASTM A182 Gr F51	G	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.	T
ASTM A182 Gr F304L	6	ASTM A182 Gr F55	H	FRP - MDA cured Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR.	U
ASTM A182 Gr F316L	7	ASTM A522 Type 1	J	ASTM A105 Epoxy coated	V
ASTM A182 Gr F11	8	ASTM A522 Type I Cladded	K	ASTM A182 Gr F310H	W
ASTM A182 Gr F317L	9	ASTM B564 (UNS N06625)	L	ASTM A182 Gr F316/316L	X
ASTM A182 Gr F347	A	Cu-Ni 90/10 (UNS 7060X)	M	ASTM A105 Thermal Spray coated (note 126)	Y
ASTM A105 Cladded	B	Cu-Ni 70/30	N	ASTM A182 Gr F22 Cl 3 (K21590)	Z

B.6.2 GENERAL INFORMATION

B.6.2.1 The organic coating shall be according to I-ET-3010.00-1200-956-P4X-002.

B.6.2.2 The Inconel cladding shall be according to I-ET-3010.00-1200-955-P4X-001.

B.6.2.3 The composite welding neck flange is according to EEMUA 145, composed of a backing flange and a stub end type L. The backing flange shall be epoxying coated following I-ET-3010.00-1200-956-P4X-002 recommendations.

B.7 GASKETS

B.7.1 IDENTIFICATION CODE

Each Gasket datasheet is identified by a code which follow the rule below:

J-class-XY

Where:

Class – Pressure class, according to Table B.6.

X – Code that identify the relation of flange face with gasket type, according to Table B.9.

Y – Flange material codes according to Table B.10.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 10 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Table B.9 - Relation between flange face type and gasket.

Code X				
Gasket type	Face type			
	FP	FR	FJA	MSJ
Flat	C	P		
Spiral Wound		E		
Ring Joint			A	B
Grooved		G		
Isolation	D	F	H	

Table B.10 - Material codes for gaskets.

Material	Filler	Inner ring	Centering ring	Facing layer	Code Y
Aramide Fiber	-	-	-	-	A
Neoprene	-	-	-	-	B
PTFE expanded	-	-	-	-	C
SBR	-	-	-	-	D
AISI 304	Graphite	AISI 304	Carbon steel	-	E
AISI 316	Graphite	AISI 316	Carbon steel	-	F
AISI 316	Graphite	AISI 317	Carbon steel	-	G
AISI 316	Graphite	AISI 316	AISI 316	-	H
AISI 347	Graphite	-	Carbon steel	-	J
MONEL	PTFE	MONEL	Carbon steel	-	K
Duplex	Graphite	Duplex	AISI 316	-	L
Inconel 625	Graphite	Inconel 625	AISI 316	-	M
Carbon Steel	-	-	-	-	N
A182 F5	-	-	-	-	P
A182 F11	-	-	-	-	Q
A182 F347	-	-	-	-	R
AISI 304	-	-	-	-	S
AISI 316	-	-	-	-	T
A182 F51	-	-	-	-	U
Inconel 625	-	-	-	-	V
A522 TP I	-	-	-	-	W
AISI 316	-	-	-	PTFE	X
Phenolic	-	-	-	Nitrile Rubber	Y

B.7.2. GENERAL INFORMATION

B.7.2.1 The Zinc-Nickel coating indicated in gaskets datasheets shall be according to item B.11.

B.7.2.2 Electric isolation gasket shall be according to Annex E.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 11 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

B.8 BOLTS AND NUTS

B.8.1. IDENTIFICATION CODE

Each Bolt and nut are identified by a code which follow the rule below:

P-class-XX

Where:

Class – Flange pressure class

XX – Sequential number, according to Table B.11.

Table B.11 - Codes for Bolts and Nuts materials.

Bolt material	Nut material	Code XX
ASTM A193 Gr B7	ASTM A194 GR 2H	01
ASTM A320 GR L7	ASTM A194 GR 7L	02
ASTM A193 Gr B16	ASTM A194 16	05
ASTM A193 Gr B16, Zn-Ni coated	ASTM A194 16, Zn-Ni coated/ ASTM A194 Gr 7, Zn-Ni coated	06
ASTM A193 Gr B7, Zn-Ni coated	ASTM A194 Gr 2H, Zn-Ni coated	07
ASTM A320 Gr L7, Zn-Ni coated	ASTM A194 Gr 7L, Zn-Ni coated	08
ASTM A320 Gr L43, Zn-Ni coated	ASTM A194 Gr 7L, Zn-Ni coated	09
ASTM A453 Gr 660	ASTM A453 Gr 660	10
ASTM A320 Gr L7M, Zn-Ni coated	ASTM A194 Gr 7ML, Zn-Ni coated	11
ASTM A193 Gr B7M, Zn-Ni coated	ASTM A194 7, Zn-Ni coated	12
718 as per API6ACRA UNS N07718	718 as per API6ACRA UNS N07718	13

B.8.2. GENERAL INFORMATION

B.8.2.1. The studs, bolts and nuts shall be coated with zinc-nickel (Zn-Ni) according to item B.11.

B.9 ZINCK-NICKEL COATING REQUIREMENTS

B.9.1. The procedure for studs, bolts, nuts, washers, and gaskets Zn-Ni coating shall be in accordance with I-ET-3010.00-1200-251-P4X-001 - REQUIREMENTS FOR BOLTING MATERIALS.

B.10 ALTEERNATIVE MATERIALS

B.10.1. All materials listed in pipe specs shall be considered as standardized materials. Therefore, alternative materials (equivalent or better) may be proposed, conditioned to PETROBRAS approval.

B.10.2. When substitutions were made shall be verified the wall thickness and the piping spec shall be updated.

B.10.3. Other alternative materials may be acceptable subject to Petrobras approval.

B.10.4. Some examples of alternative materials are in Table B.12.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 12 OF 13
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Table B.12 - Alternative Materials.

Standardized material	Alternative material
API 5L Gr B	ASTM A 106 Gr B
API 5L Gr B	API 5L Gr X65 PSL 2
API 5L Gr B	ASTM A333 GR 6
Super duplex UNS S32760	Super duplex UNS S32750
Duplex UNS 31803	Super duplex UNS S32760 or UNS S32750
ASTM A105	ASTM A350 LF2
ASTM A234 WPB	ASTM A420 WPL6

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 13 OF 13
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL
B.11 DATASHEETS			

1. PIPES

PIPE

Commodity Code	T-102	
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8 E9 E10 G10	
1. Item	Pipe	
2. Material	API 5L Gr B PSL 1	
3. Standard	ASME B36.10	
4. Schedule	-	
5. Ends	½" - 1 ½"	NPT Threaded End , Plain End
6. Seam Type	2" - 48"	Beveled End
	½" - 1 ½"	Seamless
	2" - 14"	HFW , SAW , Seamless
	16" - 24"	HFW , SAW
7. Size Range (NPS)	26" - 48"	
	SAW	
8. Additional Requirement	-	

Commodity Code	T-202	
Specs	B7	
1. Item	Pipe	
2. Material	Cu-Ni 90/10 (UNS C7060X)	
3. Standard	EEMUA 234	
4. Schedule	-	
5. Ends	½" - 2"	Plain End
6. Seam Type	2 ½" - 36"	Beveled End
	½" - 4"	Seamless
	6" - 16"	Seamless , welded
	18" - 36"	welded
7. Size Range (NPS)	½" - 36"	
8. Additional Requirement	-	

Commodity Code	T-301	
Specs	B16 C16 E16 G16P G16 H16	
1. Item	Pipe	
2. Material	ASTM A790 (UNS S31803)	
3. Standard	ASME B36.10/B36.19	
4. Schedule	-	
5. Ends	½" - 1 ½"	Plain End
6. Seam Type	2" - 14"	Beveled End
	½" - 8"	Seamless
	10" - 14"	welded
	½" - 14"	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-321	
Specs	B50	
1. Item	Pipe	
2. Material	ASTM A312 TP 310H	
3. Standard	ASME B36.19	
4. Schedule	-	
5. Ends	½" - 1 ½"	Plain End
6. Seam Type	2" - 56"	Beveled End
	½" - 1 ½"	Seamless
	2" - 56"	welded
	½" - 56"	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-404	
Specs	B22	
1. Item	Pipe	
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10 bar@90°C.	
3. Standard	ISO 14692	
4. Schedule	-	
5. Ends	½" - ¾"	Plain End
6. Seam Type	1" - 8"	Butt-Strap, Elastic Joint / Bell x Spigot Ends, Plain End , Rigid Joint / Bell x Spigot Ends, Rigid Joint / Spigot Ends
	10" - 28"	
	30" - 48"	Butt-Strap
	Seamless	
7. Size Range (NPS)	½" - 48"	
8. Additional Requirement	-	

Commodity Code	T-105	
Specs	B6 B19 C6 E6 F6	
1. Item	Pipe	
2. Material	ASTM A333 Gr 6	
3. Standard	ASME B36.10	
4. Schedule	-	
5. Ends	½" - 1 ½"	Plain End
6. Seam Type	2" - 28"	Beveled End
	½" - 10"	Seamless
	12" - 14"	Seamless , welded
	16" - 28"	welded
7. Size Range (NPS)	½" - 28"	
8. Additional Requirement	-	

Commodity Code	T-203	
Specs	B30 C30 E30 H30	
1. Item	Pipe	
2. Material	ASTM B444 Gr 1 (UNS N06625)	
3. Standard	ASME B36.10/B36.19	
4. Schedule	-	
5. Ends	½" - 1 ½"	Plain End
6. Seam Type	2" - 14"	Beveled End
	Seamless	
	½" - 14"	
	-	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-302	
Specs	B16 C16 E16 G16P G16 H16	
1. Item	Pipe	
2. Material	ASTM A928 (UNS S31803 Cl 1 or 3)	
3. Standard	ASME B36.10/B36.19	
4. Schedule	-	
5. Ends	Beveled End	
6. Seam Type	welded	
7. Size Range (NPS)	10" - 40"	
8. Additional Requirement	-	

Commodity Code	T-322	
Specs	B3 E3 G3 H3 C3.	
1. Item	Pipe	
2. Material	ASTM A312 TP 316/316L	
3. Standard	ASME B36.19	
4. Schedule	-	
5. Ends	½" - 1 ½"	Plain End
6. Seam Type	2" - 6"	Beveled End
	½" - 1 ½"	Seamless
	2" - 6"	welded
	½" - 6"	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-405	
Specs		
1. Item	Pipe	
2. Material	FRP - Bisphenol A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 10 bar@90°C.	
3. Standard	ISO 14692	
4. Schedule	-	
5. Ends	-	
6. Seam Type	-	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-106	
Specs	B6 B19 C6 E6 F6	
1. Item	Pipe	
2. Material	ASTM A671 Gr CC60 Class 22	
3. Standard	ASME B36.10	
4. Schedule	-	
5. Ends	Beveled End	
6. Seam Type	2" - 10"	Seamless
	12" - 14"	Seamless , welded
	16" - 44"	welded
	2" - 44"	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-217	
Specs		
1. Item	Pipe	
2. Material	ASTM A671 Gr CFE70 Class 32	
3. Standard	ASME B36.10	
4. Schedule	-	
5. Ends	-	
6. Seam Type	-	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-303	
Specs	B12 C12 G12 H12P J12	
1. Item	Pipe	
2. Material	ASTM A790 (UNS S32760)	
3. Standard	ASME B36.10/B36.19	
4. Schedule	-	
5. Ends	½" - 1"	Plain End
6. Seam Type	1 ½"	Beveled End , Plain End
	2" - 8"	Beveled End
	Seamless	
	8"	welded
7. Size Range (NPS)	½" - 8"	
8. Additional Requirement	-	

Commodity Code	T-323	
Specs	B3 E3 G3 H3 C3.	
1. Item	Pipe	
2. Material	ASTM A358 Type 316/316L Cl 1 or 3	
3. Standard	ASME B36.10/B36.19	
4. Schedule	-	
5. Ends	Beveled End	
6. Seam Type	welded	
7. Size Range (NPS)	2" - 44"	
8. Additional Requirement	-	

Commodity Code	T-406	
Specs	B23	
1. Item	Pipe	
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16 bar@90°C.	
3. Standard	ISO 14692	
4. Schedule	-	
5. Ends	Butt-Strap	
6. Seam Type	Seamless	
7. Size Range (NPS)	1" - 64"	
8. Additional Requirement	-	

Commodity Code	T-107	
Specs	E9 E10 E30 G10 H30	
1. Item	Pipe	
2. Material	API 5L Gr X65 PSL 2	
3. Standard	ASME B36.10	
4. Schedule	-	
5. Ends	1" - 1 ½"	Plain End
6. Seam Type	2" - 34"	Beveled End
	1" - 1 ½"	Seamless
	2" - 14"	SAW , Seamless
	16" - 34"	SAW
7. Size Range (NPS)	1" - 34"	
8. Additional Requirement	-	

Commodity Code	T-218	
Specs	E34	
1. Item	Pipe	
2. Material	ASTM A335 P22 (UNS K21590)	
3. Standard	ASME B36.10	
4. Schedule	-	
5. Ends	½" - 1 ½"	Plain End
6. Seam Type	2" - 14"	Beveled End
	Seamless	
	½" - 14"	
	-	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-304	
Specs	B12 C12 G12 H12P J12	
1. Item	Pipe	
2. Material	ASTM A928 (UNS S32760 Cl 1 or 3)	
3. Standard	ASME B36.10/B36.19	
4. Schedule	-	
5. Ends	½" - 1 ½"	Plain End
6. Seam Type	2" - 48"	Beveled End
	½" - 8"	Seamless
	10" - 48"	welded
	½" - 48"	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-325	
Specs	T60A	
1. Item	Pipe	
2. Material	A269 (UNS S31254)	
3. Standard	-	
4. Schedule	-	
5. Ends	Plain End	
6. Seam Type	Seamless	
7. Size Range (NPS)	½" - 1 ½"	
8. Additional Requirement	-	

Commodity Code	T-407	
Specs		
1. Item	Pipe	
2. Material	FRP - Bisphenol A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 16 bar@90°C.	
3. Standard	ISO 14692	
4. Schedule	-	
5. Ends	-	
6. Seam Type	-	
7. Size Range (NPS)	-	
8. Additional Requirement	-	

Commodity Code	T-408
Specs	B26
1. Item	Pipe
2. Material	FRP MDA cured Bisphenol A Epoxy resin with fiberglass type E or E-CR.
3. Standard	ISO 14692
4. Schedule	-
5. Ends	Butt-Strap
6. Seam Type	Seamless
7. Size Range (NPS)	1" - 36"
8. Additional Requirement	-

Commodity Code	T-409
Specs	B27
1. Item	Pipe
2. Material	FRP - Epoxy vinyl ester resins (bisphenol A brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16 bar@85°C.
3. Standard	ISO 14692
4. Schedule	-
5. Ends	Butt-Strap
6. Seam Type	Seamless
7. Size Range (NPS)	1" - 12"
8. Additional Requirement	-

Commodity Code	T-410	
Specs	B28 C23 C28	
1. Item	Pipe	
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25 bar@90°C.	
3. Standard	ISO 14692	
4. Schedule	-	
5. Ends	½"	Plain End
	¾"	Butt-Strap, Plain End
	1" - 8"	Butt-Strap, Elastic Joint / Bell x Spigot Ends, Plain End , Rigid Joint / Bell x Spigot Ends, Rigid Joint / Spigot Ends
	10" - 28"	Butt-Strap, Elastic Joint / Bell x Spigot Ends, Rigid Joint / Bell x Spigot Ends, Rigid Joint / Spigot Ends
	30" - 64"	Butt-Strap
6. Seam Type	Seamless	
7. Size Range (NPS)	½" - 64"	
8. Additional Requirement	-	



B12.2.1 5D 45 DEG PIPE BEND

Commodity Code	!! EXISTING !! C34-39 ID155040
Specs	
1. Fitting type	5D 45 deg Pipe Bend
2. Material	ASTM B444 Gr 1 (UNS N06625)
3. Standard	ASME B31.8 (ISO 15590-1 or ASME B16.49)
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C34-42
Specs	G16P
1. Fitting type	5D 45 deg Pipe Bend
2. Material	ASTM A928 (UNS S31803 Cl 1 or 3)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	10" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C34-28
Specs	G16P
1. Fitting type	5D 45 deg Pipe Bend
2. Material	ASTM A790 (UNS S31803)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C34-46
Specs	
1. Fitting type	5D 45 deg Pipe Bend
2. Material	ASTM A358 TP316/316L
3. Standard	ASME B31.8 (ISO 15590-1 or ASME B16.49)
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C34-31
Specs	H12P
1. Fitting type	5D 45 deg Pipe Bend
2. Material	ASTM A790 (UNS S32760)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" - 18"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C34-41
Specs	H12P
1. Fitting type	5D 45 deg Pipe Bend
2. Material	ASTM A928 (UNS S32760 Cl 1 or 3)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	10" - 18"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.2 5D 90 DEG PIPE BEND

Commodity Code	!! EXISTING !! C36-39 ID155044
Specs	
1. Fitting type	5D 90 deg Pipe Bend
2. Material	ASTM B444 Gr 1 (UNS N06625)
3. Standard	ASME B31.8 (ISO 15590-1 or ASME B16.49)
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C36-42
Specs	G16P
1. Fitting type	5D 90 deg Pipe Bend
2. Material	ASTM A928 (UNS S31803 Cl 1 or 3)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	10" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C36-28
Specs	G16P
1. Fitting type	5D 90 deg Pipe Bend
2. Material	ASTM A790 (UNS S31803)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C36-46
Specs	
1. Fitting type	5D 90 deg Pipe Bend
2. Material	ASTM A358 TP316/316L
3. Standard	ASME B31.8 (ISO 15590-1 or ASME B16.49)
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C36-31
Specs	H12P
1. Fitting type	5D 90 deg Pipe Bend
2. Material	ASTM A790 (UNS S32760)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	4" - 8"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C36-41
Specs	H12P
1. Fitting type	5D 90 deg Pipe Bend
2. Material	ASTM A928 (UNS S32760 Cl 1 or 3)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	10" - 18"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.3 90 DEG ELBOW, B16.11

Commodity Code	C01-02
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM A105
3. Standard	ASME B16.11
4. Pressure class or thickness	3000 ½" - 1 ½" 2000, 6000, 9000
5. End connections	NPT Threaded End ½" - 1 ½" Socket Weld
6. Size Range (NPS)	½" - 2"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-30
Specs	B12 C12 G12
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-62
Specs	B50
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM A350 Gr LF2 Cl 1
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-33
Specs	B30 C30 E30
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-66
Specs	E34
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM A182 Gr F22 Cl 3 (K21590)
3. Standard	ASME B16.11
4. Pressure class or thickness	6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-24
Specs	
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM A420 Gr WPL8
3. Standard	ASME B16.11
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-35
Specs	B7
1. Fitting type	90 deg Elbow, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-27
Specs	B16 C16 E16 G16P G16
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C01-43
Specs	B3 E3 G3 C3.
1. Fitting type	90 deg Elbow, B16.11
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.4 45 DEG ELBOW, B16.11

Commodity Code	C02-02
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Fitting type	45 deg Elbow, B16.11
2. Material	ASTM A105
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	NPT Threaded End , Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C02-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	45 deg Elbow, B16.11
2. Material	ASTM A350 Gr LF2 Cl 1
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C02-27
Specs	B16 C16 E16 G16P G16
1. Fitting type	45 deg Elbow, B16.11
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C02-30
Specs	B12 C12 G12
1. Fitting type	45 deg Elbow, B16.11
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C02-33
Specs	B30 C30 E30
1. Fitting type	45 deg Elbow, B16.11
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C02-66
Specs	E34
1. Fitting type	45 deg Elbow, B16.11
2. Material	ASTM A182 Gr F22 C1 3 (K21590)
3. Standard	ASME B16.11
4. Pressure class or thickness	6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.5 TEE, B16.11

Commodity Code	C03-02
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Fitting type	Tee, B16.11
2. Material	ASTM A105
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000 ¾" - 1 ½"9000
5. End connections	NPT Threaded End , Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C03-33
Specs	B30 C30 E30
1. Fitting type	Tee, B16.11
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C03-66
Specs	E34
1. Fitting type	Tee, B16.11
2. Material	ASTM A182 Gr F22 C1 3 (K21590)
3. Standard	ASME B16.11
4. Pressure class or thickness	6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

B12.2.6 REDUCING TEE, B16.11

Commodity Code	C04-02
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM A105
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	NPT Threaded End , Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C04-33
Specs	B30 C30 E30
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C04-66
Specs	E34
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM A182 Gr F22 C1 3 (K21590)
3. Standard	ASME B16.11
4. Pressure class or thickness	6000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.7 CROSS, B16.11

Commodity Code	C05-02
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Fitting type	Cross, B16.11
2. Material	ASTM A105
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	NPT Threaded End , Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C02-35
Specs	B7
1. Fitting type	45 deg Elbow, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C03-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	Tee, B16.11
2. Material	ASTM A350 Gr LF2 C1 1
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C03-35
Specs	B7
1. Fitting type	Tee, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C03-66
Specs	B7
1. Fitting type	Tee, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C04-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM A350 Gr LF2 C1 1
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C04-35
Specs	
1. Fitting type	Reducing Tee, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C04-66
Specs	
1. Fitting type	Reducing Tee, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C05-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	Cross, B16.11
2. Material	ASTM A350 Gr LF2 C1 1
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C02-43
Specs	B3 E3 G3 C3.
1. Fitting type	45 deg Elbow, B16.11
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C03-27
Specs	B16 C16 E16 G16P G16
1. Fitting type	Tee, B16.11
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C03-43
Specs	B3 E3 G3 C3.
1. Fitting type	Tee, B16.11
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C03-62
Specs	B50
1. Fitting type	Tee, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C04-27
Specs	B16 C16 E16 G16P G16
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C04-43
Specs	B3 E3 G3 C3.
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C04-62
Specs	B50
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C05-27
Specs	B16 C16 E16 G16P G16
1. Fitting type	Cross, B16.11
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C05-30
Specs	B12 C12 G12
1. Fitting type	Cross, B16.11
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C02-62
Specs	B50
1. Fitting type	45 deg Elbow, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C03-30
Specs	B12 C12 G12
1. Fitting type	Tee, B16.11
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C03-62
Specs	B50
1. Fitting type	Tee, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

Commodity Code	C04-30
Specs	B12 C12 G12
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C04-62
Specs	B50
1. Fitting type	Reducing Tee, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C05-30
Specs	B12 C12 G12
1. Fitting type	Cross, B16.11
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C05-33
Specs	B30 C30 E30
1. Fitting type	Cross, B16.11
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C05-43
Specs	B3 E3 G3 C3.
1. Fitting type	Cross, B16.11
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C05-62
Specs	B50
1. Fitting type	Cross, B16.11
2. Material	ASTM A182 Gr F310H
2. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C05-66
Specs	E34
1. Fitting type	Cross, B16.11
2. Material	ASTM A182 Gr F22 C1 3 (K21590)
3. Standard	ASME B16.11
4. Pressure class or thickness	6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.8 COUPLING

Commodity Code	C06-02
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Fitting type	Coupling
2. Material	ASTM A105
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	NPT Threaded End , Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	Coupling
2. Material	ASTM A350 Gr LF2 C1 1
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-27
Specs	B16 C16 E16 G16P G16
1. Fitting type	Coupling
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-30
Specs	B12 C12 G12
1. Fitting type	Coupling
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-33
Specs	B30 C30 E30
1. Fitting type	Coupling
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-35
Specs	B7
1. Fitting type	Coupling
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-43
Specs	B3 E3 G3 C3.
1. Fitting type	Coupling
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-52
Specs	B22
1. Fitting type	Coupling
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	10 bar
5. End connections	Bell-Spigot
6. Size Range (NPS)	1" - 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-53
Specs	
1. Fitting type	Coupling
2. Material	FRP - A Epoxy vinyléster resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-54
Specs	B23
1. Fitting type	Coupling
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot
6. Size Range (NPS)	1" - 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-55
Specs	
1. Fitting type	Coupling
2. Material	FRP - Bisphenol A Epoxy vinyléster resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-56	
Specs	B26	
1. Fitting type	Coupling	
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.	
3. Standard	ISO 14692	
4. Pressure class or thickness	16 bar	
	1" – 16"	10 bar, 25 bar
5. End connections	Bell-Spigot	
	1" – 16"	Butt-Strap
6. Size Range (NPS)	1" – 36"	
7. Additional requirement	-	
8. Weight	-	
9. Dimension	-	

Commodity Code	C06-57
Specs	B27
1. Fitting type	Coupling
2. Material	FRP - Epoxy vinyléster resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot
6. Size Range (NPS)	1" - 12"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-62
Specs	B50
1. Fitting type	Coupling
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-64
Specs	B28 C23 C28
1. Fitting type	Coupling
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	25 bar 1" – 6" 16 bar
5. End connections	Bell-Spigot
6. Size Range (NPS)	¾" - 28"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C06-66
Specs	E34
1. Fitting type	Coupling
2. Material	ASTM A182 Gr F22 C1 3 (K21590)
3. Standard	ASME B16.11
4. Pressure class or thickness	6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.9 HALF COUPLING, B16.11

Commodity Code	C07-43
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.11
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C07-50
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	PVC - ASTM D1784 class 12454
3. Standard	ASTM D2464
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C07-51
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	CPVC - ASTM D1784 class 23447
3. Standard	ASTM F439
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C07-52
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C07-53
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	FRP - A Epoxy vinyléster resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C07-54
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C07-55
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	FRP - Bisphenol A Epoxy vinyléster resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C07-56
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C07-57
Specs	
1. Fitting type	Half Coupling, B16.11
2. Material	FRP - Epoxy vinyléster resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

B12.2.10 REDUCING COUPLING, B16.11

Commodity Code	C08-02	
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10	
1. Fitting type	Reducing Coupling, B16.11	
2. Material	ASTM A105	
3. Standard	ASME B16.11	
4. Pressure class or thickness	3000, 6000, 9000	
5. End connections	Socket Weld	
	¾"	NPT Threaded End
6. Size Range (NPS)	¾" - 1 ½"	
7. Additional requirement	-	
8. Weight	-	
9. Dimension	-	

Commodity Code	C08-33	
Specs	B30 C30 E30	
1. Fitting type	Reducing Coupling, B16.11	
2. Material	ASTM B366 (UNS N06625)	
3. Standard	ASME B16.11	
4. Pressure class or thickness	3000	
5. End connections	Socket Weld	
	¾"	NPT Threaded End
6. Size Range (NPS)	¾" - 1 ½"	
7. Additional requirement	-	
8. Weight	-	
9. Dimension	-	

Commodity Code	C08-53
Specs	
1. Fitting type	Reducing Coupling, B16.11
2. Material	FRP - A Epoxy vinylster resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-57
Specs	
1. Fitting type	Reducing Coupling, B16.11
2. Material	FRP - Epoxy vinylster resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.11 HEX HEAD PLUG, B16.11

Commodity Code	C09-26
Specs	
1. Fitting type	Hex Head Plug, B16.11
2. Material	ASTM A182 Gr F316
3. Standard	ASME B16.11
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	½" - 2"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.12 UNION

Commodity Code	C10-02
Specs	C8 E8
1. Fitting type	Union
2. Material	ASTM A105
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	NPT Threaded End , Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.13 CAP, B16.11

Commodity Code	C11-02
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Fitting type	Cap, B16.11
2. Material	ASTM A105
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	NPT Threaded End , Socket weld
	1" - 1 ½" Beveled End
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C11-33
Specs	B30 C30 E30
1. Fitting type	Cap, B16.11
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	NPT Threaded End , Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-04	
Specs	B6 B19 C6 E6 F6	
1. Fitting type	Reducing Coupling, B16.11	
2. Material	ASTM A350 Gr LF2 C1 1	
3. Standard	ASME B16.11	
4. Pressure class or thickness	3000, 6000, 9000	
5. End connections	Socket Weld	
	¾"	NPT Threaded End
6. Size Range (NPS)	¾" - 1 ½"	
7. Additional requirement	-	
8. Weight	-	
9. Dimension	-	

Commodity Code	C08-35
Specs	B7
1. Fitting type	Reducing Coupling, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar, Male x Female Capilar
6. Size Range (NPS)	¾" - 2"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-54
Specs	
1. Fitting type	Reducing Coupling, B16.11
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-62
Specs	B50
1. Fitting type	Reducing Coupling, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C09-35
Specs	B7
1. Fitting type	Hex Head Plug, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	NPT Threaded End
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C10-35
Specs	B7
1. Fitting type	Union
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C11-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	Cap, B16.11
2. Material	ASTM A350 Gr LF2 C1 1
3. Standard	ASME B16.11
4. Pressure class or thickness	3000, 6000, 9000
5. End connections	NPT Threaded End , Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C11-35
Specs	B7
1. Fitting type	Cap, B16.11
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-27	
Specs	B16 C16 E16 G16P G16	
1. Fitting type	Reducing Coupling, B16.11	
2. Material	ASTM A182 Gr F51 (UNS S31803)	
3. Standard	ASME B16.11	
4. Pressure class or thickness	3000	
5. End connections	Socket Weld	
	¾"	NPT Threaded End
6. Size Range (NPS)	¾" - 1 ½"	
7. Additional requirement	-	
8. Weight	-	
9. Dimension	-	

Commodity Code	C08-43
Specs	B3 E3 G3 C3.
1. Fitting type	Reducing Coupling, B16.11
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-55
Specs	
1. Fitting type	Reducing Coupling, B16.11
2. Material	FRP - Bisphenol A Epoxy vinylster resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-62
Specs	B50
1. Fitting type	Reducing Coupling, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C09-36
Specs	B22 B23 B26 B28 C23 C28
1. Fitting type	Hex Head Plug, B16.11
2. Material	ASTM B62 (UNS C83600)
3. Standard	ASME B16.15
4. Pressure class or thickness	250
5. End connections	NPT Threaded End
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-30	
Specs	B12 C12 G12	
1. Fitting type	Reducing Coupling, B16.11	
2. Material	ASTM A182 Gr F55 (UNS S32760)	
3. Standard	ASME B16.11	
4. Pressure class or thickness	3000	
5. End connections	Socket Weld	
	¾"	NPT Threaded End
6. Size Range (NPS)	¾" - 1 ½"	
7. Additional requirement	-	
8. Weight	-	
9. Dimension	-	

Commodity Code	C08-52
Specs	
1. Fitting type	Reducing Coupling, B16.11
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-56
Specs	
1. Fitting type	Reducing Coupling, B16.11
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C08-62
Specs	B50
1. Fitting type	Reducing Coupling, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C09-36
Specs	B22 B23 B26 B28 C23 C28
1. Fitting type	Hex Head Plug, B16.11
2. Material	ASTM B62 (UNS C83600)
3. Standard	ASME B16.15
4. Pressure class or thickness	250
5. End connections	NPT Threaded End
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C10-35
Specs	B7
1. Fitting type	Union
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	Female Capilar
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C11-27
Specs	B16 C16 E16 G16P G16
1. Fitting type	Cap, B16.11
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	NPT Threaded End , Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C11-62
Specs	B50
1. Fitting type	Cap, B16.11
2. Material	ASTM A182 Gr F310H
3. Standard	ASME B16.11
4. Pressure class or thickness	3000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C11-66
Specs	E34
1. Fitting type	Cap, B16.11
2. Material	ASTM A182 Gr F22 C1 3 (K21590)
3. Standard	ASME B16.11
4. Pressure class or thickness	6000
5. End connections	Socket Weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.14 WELDOLET

Commodity Code	C12-02
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	weldolet
2. Material	ASTM A105
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1" - 20"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-30
Specs	B12 C12 G12 H12P J12
1. Fitting type	weldolet
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1" - 16"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-62
Specs	B50
1. Fitting type	weldolet
2. Material	ASTM A182 Gr F310H
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" - 24"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	weldolet
2. Material	ASTM A350 Gr LF2 C1 1
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1" - 50"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-33
Specs	B30 C30 E30 H30
1. Fitting type	weldolet
2. Material	ASTM B366 (UNS N06625)
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-63
Specs	E34
1. Fitting type	weldolet
2. Material	ASTM A182 Gr F22 C1 3 (K21590)
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" - 6"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	weldolet
2. Material	ASTM A694 Gr F65
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1" - 16"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-35
Specs	B7
1. Fitting type	weldolet
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" - 16"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-27
Specs	B16 C16 E16 G16P G16 H16
1. Fitting type	weldolet
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1" - 18"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C12-43
Specs	B3 E3 G3 H3 C3.
1. Fitting type	weldolet
2. Material	ASTM A182 Gr F316/316L
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1" - 20"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.15 LONG RADIUS 90 DEG ELBOW

Commodity Code	C15-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-52
Specs	B22
1. Fitting type	Long Radius 90 deg Elbow
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	10 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" - 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-56
Specs	B26
1. Fitting type	Long Radius 90 deg Elbow
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-33
Specs	B30 C30 E30 H30
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-53
Specs	
1. Fitting type	Long Radius 90 deg Elbow
2. Material	FRP - A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-57
Specs	B27
1. Fitting type	Long Radius 90 deg Elbow
2. Material	FRP - Epoxy vinylester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" - 12"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	""
5. End connections	Beveled End
6. Size Range (NPS)	1" - 24"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-35
Specs	B7
1. Fitting type	Long Radius 90 deg Elbow
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-54
Specs	B23
1. Fitting type	Long Radius 90 deg Elbow
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Butt-Strap
6. Size Range (NPS)	1" - 48" Bell-Spigot
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-29
Specs	B16 C16 E16 G16P G16 H16
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-55
Specs	
1. Fitting type	Long Radius 90 deg Elbow
2. Material	FRP - Bisphenol A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-59
Specs	
1. Fitting type	Long Radius 90 deg Elbow
2. Material	RPVC - Glass fiber reinforced PVC
3. Standard	according to manufacturer
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-60
Specs	
1. Fitting type	Long Radius 90 deg Elbow
2. Material	RPVC – Glass fiber reinforced PVC
3. Standard	according to manufacturer
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-63
Specs	B50
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-64
Specs	B28 C23 C28
1. Fitting type	Long Radius 90 deg Elbow
2. Material	FRP – Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	25 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	¾" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C15-65
Specs	E34
1. Fitting type	Long Radius 90 deg Elbow
2. Material	ASTM A234 Gr WP22 C1 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.16 LONG RADIUS 45 DEG ELBOW

Commodity Code	C16-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-

Commodity Code	C16-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-

Commodity Code	C16-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	""
5. End connections	Beveled End
6. Size Range (NPS)	1" – 24"
7. Additional requirement	-

Commodity Code	C16-29
Specs	B16 C16 E16 G16P G16 H16
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 40"
7. Additional requirement	-

Commodity Code	C16-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 36"
7. Additional requirement	-

Commodity Code	C16-33
Specs	B30 C30 E30 H30
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 14"
7. Additional requirement	-

Commodity Code	C16-35
Specs	B7
1. Fitting type	Long Radius 45 deg Elbow
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 36"
7. Additional requirement	-

Commodity Code	C16-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-

Commodity Code	C16-52
Specs	B22
1. Fitting type	Long Radius 45 deg Elbow
2. Material	FRP – Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	10 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" – 48"
7. Additional requirement	-

Commodity Code	C16-53
Specs	
1. Fitting type	Long Radius 45 deg Elbow
2. Material	FRP – A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C16-54
Specs	B23
1. Fitting type	Long Radius 45 deg Elbow
2. Material	FRP – Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Butt-Strap 1" – 48" Bell-Spigot
6. Size Range (NPS)	1" – 60"
7. Additional requirement	-

Commodity Code	C16-55
Specs	
1. Fitting type	Long Radius 45 deg Elbow
2. Material	FRP – Bisphenol A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C16-56
Specs	B26
1. Fitting type	Long Radius 45 deg Elbow
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" – 36"
7. Additional requirement	-

Commodity Code	C16-57
Specs	B27
1. Fitting type	Long Radius 45 deg Elbow
2. Material	FRP – Epoxy vinyl ester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" – 12"
7. Additional requirement	-

Commodity Code	C16-58
Specs	
1. Fitting type	Long Radius 45 deg Elbow
2. Material	RPVC – Glass fiber reinforced PVC
3. Standard	according to manufacturer
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C16-59
Specs	
1. Fitting type	Long Radius 45 deg Elbow
2. Material	RPVC – Glass fiber reinforced PVC
3. Standard	according to manufacturer
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C16-60
Specs	
1. Fitting type	Long Radius 45 deg Elbow
2. Material	RPVC – Glass fiber reinforced PVC
3. Standard	according to manufacturer
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C16-63
Specs	B50
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 48"
7. Additional requirement	-

Commodity Code	C16-64
Specs	B28 C23 C28
1. Fitting type	Long Radius 45 deg Elbow
2. Material	FRP – Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	25 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	¾" – 40"
7. Additional requirement	-

Commodity Code	C16-65
Specs	E34
1. Fitting type	Long Radius 45 deg Elbow
2. Material	ASTM A234 Gr WP22 C1 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 14"
7. Additional requirement	-

B12.2.17 SHORT RADIUS 90 DEG ELBOW

Commodity Code	C17-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C17-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C17-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	""
5. End connections	Beveled End
6. Size Range (NPS)	1" – 24"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C17-29
Specs	B16 C16 E16 G16P G16 H16
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C17-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C17-33
Specs	B30 C30 E30 H30
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C17-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C17-63
Specs	B50
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 24"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C17-65
Specs	E34
1. Fitting type	Short radius 90 deg Elbow
2. Material	ASTM A234 Gr WP22 C1 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.18 CONCENTRIC REDUCING

Commodity Code	C18-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Concentric Reducing
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Concentric Reducing
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Concentric Reducing
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 24"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-29
Specs	B16 C16 E16 G16P G16 H16
1. Fitting type	Concentric Reducing
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Concentric Reducing
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-33
Specs	B30 C30 E30 H30
1. Fitting type	Concentric Reducing
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-35
Specs	B7
1. Fitting type	Concentric Reducing
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	3" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Concentric Reducing
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-63
Specs	B50
1. Fitting type	Concentric Reducing
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	3" - 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C18-65
Specs	E34
1. Fitting type	Concentric Reducing
2. Material	ASTM A234 Gr WP22 C1 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	4" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.19 ECCENTRIC REDUCING

Commodity Code	C19-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Eccentric Reducing
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Eccentric Reducing
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Eccentric Reducing
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 24"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-29
Specs	B16 C16 E16 G16P G16 H16
1. Fitting type	Eccentric Reducing
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Eccentric Reducing
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-33
Specs	B30 C30 E30 H30
1. Fitting type	Eccentric Reducing
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-35
Specs	B7
1. Fitting type	Eccentric Reducing
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	3" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Eccentric Reducing
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-63
Specs	B50
1. Fitting type	Eccentric Reducing
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	3" - 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C19-65
Specs	E34
1. Fitting type	Eccentric Reducing
2. Material	ASTM A234 Gr WP22 C1 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	4" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.20 TEE

Commodity Code	C20-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Tee
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Tee
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Tee
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	""
5. End connections	Beveled End
6. Size Range (NPS)	1" - 34"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-29
Specs	B16 C16 E16 G16P G16 H16
1. Fitting type	Tee
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Tee
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-33
Specs	B30 C30 E30 H30
1. Fitting type	Tee
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" - 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-35
Specs	B7
1. Fitting type	Tee
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Tee
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" - 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-50
Specs	
1. Fitting type	Tee
2. Material	PVC – ASTM D1784 Class 12454
3. Standard	ASTM D2464
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-51
Specs	
1. Fitting type	Tee
2. Material	CPVC – ASTM D1784 Class 23447
3. Standard	ASTM F439
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-52
Specs	B22
1. Fitting type	Tee
2. Material	FRP – Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	10 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-53
Specs	
1. Fitting type	Tee
2. Material	FRP – A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-54
Specs	B23
1. Fitting type	Tee
2. Material	FRP – Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Butt-Strap 1" – 48" Bell-Spigot
6. Size Range (NPS)	1" – 52"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-55
Specs	
1. Fitting type	Tee
2. Material	FRP – Bisphenol A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-56
Specs	B26
1. Fitting type	Tee
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" – 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-57
Specs	B27
1. Fitting type	Tee
2. Material	FRP – Epoxy vinyl ester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" – 12"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-63
Specs	B50
1. Fitting type	Tee
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-64
Specs	B28 C23 C28
1. Fitting type	Tee
2. Material	FRP – Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	25 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	¾" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C20-65
Specs	E34
1. Fitting type	Tee
2. Material	ASTM A234 Gr WP22 C1 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.21 REDUCING TEE

Commodity Code	C21-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Reducing Tee
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Reducing Tee
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Reducing Tee
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" – 34"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-29
Specs	B16 C16 E16 G16P G16 H16
1. Fitting type	Reducing Tee
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Reducing Tee
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" – 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-33
Specs	B30 C30 E30 H30
1. Fitting type	Reducing Tee
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-35
Specs	B7
1. Fitting type	Reducing Tee
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	3" – 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Reducing Tee
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	1 ½" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-63
Specs	B50
1. Fitting type	Reducing Tee
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	3" – 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C21-65
Specs	E34
1. Fitting type	Reducing Tee
2. Material	ASTM A234 Gr WP22 C1 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	4" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.22 CAP

Commodity Code	C22-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Cap
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Cap
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Cap
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	""
5. End connections	Beveled End
6. Size Range (NPS)	1" – 34"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-29
Specs	B16 C16 E16 G16 H16
1. Fitting type	Cap
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Cap
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-33
Specs	B30 C30 E30 H30
1. Fitting type	Cap
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-35
Specs	B7
1. Fitting type	Cap
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Cap
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-50
Specs	
1. Fitting type	Cap
2. Material	PVC – ASTM D1784 class 12454
3. Standard	ASTM D2464
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-51
Specs	
1. Fitting type	Cap
2. Material	CPVC – ASTM D1784 class 23447
3. Standard	ASTM F439
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-63
Specs	B50
1. Fitting type	Cap
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C22-65
Specs	E34
1. Fitting type	Cap
2. Material	ASTM A234 Gr WP22 Cl 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.23 HEX HEAD BUSHING, B16.11

Commodity Code	C23-35	
Specs	B7	
1. Fitting type	Hex Head Bushing, B16.11	
2. Material	Cu-Ni 90/10 (UNS C7060X)	
3. Standard	EEMUA 234	
4. Pressure class or thickness	20 bar, 3000, 6000, 9000	
5. End connections	1 ½"	10 bar, 16 bar, 25 bar
	Female Capilar, Female NPT Thread x Male Capilar, Male x Female Capilar, NPT Threaded End , Socket weld	
	1 ½"	Butt-Strap, Elastic Joint / Bell x Spigot Ends, Rigid Joint / Bell x Spigot Ends, Rigid Joint / Spigot Ends
6. Size Range (NPS)	¾" – 1 ½"	
7. Additional requirement	-	

B12.2.24 CROSS

Commodity Code	C24-03
Specs	B4 B9 B10 B11 B14 B17 B30 C4 C8 C10 C11 C30 E4 E8
1. Fitting type	Cross
2. Material	ASTM A234 Gr WPB
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-05
Specs	B6 B19 C6 E6 F6
1. Fitting type	Cross
2. Material	ASTM A420 Gr WPL6
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-22
Specs	E9 E10 E30 G10 H30
1. Fitting type	Cross
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-75
4. Pressure class or thickness	""
5. End connections	Beveled End
6. Size Range (NPS)	1" – 24"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-29
Specs	B16 C16 E16 G16 H16
1. Fitting type	Cross
2. Material	ASTM A815 (UNS S31803)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-32
Specs	B12 C12 G12 H12P J12
1. Fitting type	Cross
2. Material	ASTM A815 (UNS S32760)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-33
Specs	B30 C30 E30 H30
1. Fitting type	Cross
2. Material	ASTM B366 (UNS N06625)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-44
Specs	B3 E3 G3 H3 C3.
1. Fitting type	Cross
2. Material	ASTM A403 Gr WP316/316L
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	1" – 44"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-50
Specs	
1. Fitting type	Cross
2. Material	PVC – ASTM D1784 class 12454
3. Standard	ASTM D2464
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-51
Specs	
1. Fitting type	Cross
2. Material	CPVC – ASTM D1784 class 23447
3. Standard	ASTM F439
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-63
Specs	B50
1. Fitting type	Cross
2. Material	ASTM A403 Gr WP310H
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C24-65
Specs	E34
1. Fitting type	Cross
2. Material	ASTM A234 Gr WP22 Cl 3 (UNS K21590)
3. Standard	ASME B16.9
4. Pressure class or thickness	-
5. End connections	Beveled End
6. Size Range (NPS)	2" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.25 3D 45 DEG PIPE BEND

Commodity Code	C33-28
Specs	G16P
1. Fitting type	3D 45 deg Pipe Bend
2. Material	ASTM A790 (UNS S31803)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C33-31
Specs	H12P
1. Fitting type	3D 45 deg Pipe Bend
2. Material	ASTM A790 (UNS S32760)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" – 18"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C33-41
Specs	H12P
1. Fitting type	3D 45 deg Pipe Bend
2. Material	ASTM A928 (UNS S32760 Cl 1 or 3)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	10" – 18"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C33-42
Specs	G16P
1. Fitting type	3D 45 deg Pipe Bend
2. Material	ASTM A928 (UNS S31803 Cl 1 or 3)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	10" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C33-46
Specs	
1. Fitting type	3D 45 deg Pipe Bend
2. Material	ASTM A358 TP316/316L
3. Standard	ASME B31.8 (ISO 15590-1 or ASME B16.49)
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.26 3D 90 DEG PIPE BEND

Commodity Code	C35-28
Specs	G16P
1. Fitting type	3D 90 deg Pipe Bend
2. Material	ASTM A790 (UNS S31803)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C35-31
Specs	H12P
1. Fitting type	3D 90 deg Pipe Bend
2. Material	ASTM A790 (UNS S32760)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	2" – 18"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C35-41
Specs	H12P
1. Fitting type	3D 90 deg Pipe Bend
2. Material	ASTM A928 (UNS S32760 Cl 1 or 3)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	10" – 18"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C35-42
Specs	G16P
1. Fitting type	3D 90 deg Pipe Bend
2. Material	ASTM A928 (UNS S31803 Cl 1 or 3)
3. Standard	NORSOK M-630 NBE2
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	10" – 14"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C35-46
Specs	
1. Fitting type	3D 90 deg Pipe Bend
2. Material	ASTM A358 TP316/316L
3. Standard	ASME B31.8 (ISO 15590-1 or ASME B16.49)
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.27 CONNECTOR

Commodity Code	C37-35
Specs	B7
1. Fitting type	Connector
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	-
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.28 CONNECTOR UNION

Commodity Code	C38-35
Specs	B7
1. Fitting type	Connector Union
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	20 bar
5. End connections	-
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-

B12.2.29 STUB END WELDING NECK L TYPE

Commodity Code	C39-35	
Specs	B7	
1. Fitting type	Stub End welding Neck L type	
2. Material	Cu-Ni 90/10 (UNS C7060X)	
3. Standard	EEMUA 234	
4. Pressure class or thickness	4"	20 bar"
	6"	", 20 bar"
	8"	", 16 bar, 20 bar"
	10"	", 16 bar, 16 bar16 bar, 20 bar, 20 bar"
	12" - 16"	", 16 bar, 16 bar", 16 bar16 bar, 20 bar, 20 bar"
	18" - 20"	", 16 bar, 16 bar", 16 bar16 bar, 20 bar, 20 bar20 bar
	24"	16 bar, 16 bar16 bar, 20 bar, 20 bar20 bar
	28" - 32"	16 bar, 20 bar, 20 bar20 bar
	36"	16 bar, 20 bar
5. End connections	Beveled end	
6. Size Range (NPS)	4" - 36"	
7. Additional requirement	-	
8. Weight	-	
9. Dimension	-	

B12.2.30 FLANGED SADDLE

Commodity Code	C51-52
Specs	B22
1. Fitting type	Flanged Saddle
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	1" - 6"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C51-56
Specs	B26
1. Fitting type	Flanged Saddle
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	1" - 6"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.31 THREADED SADDLE FLG

Commodity Code	C52-52
Specs	B22
1. Fitting type	Threaded Saddle Flg
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	1" - 1 ½"
7. Additional requirement	-

Commodity Code	C51-53
Specs	
1. Fitting type	Flanged Saddle
2. Material	FRP - A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C51-57
Specs	B27
1. Fitting type	Flanged Saddle
2. Material	FRP - Epoxy vinylester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	1" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C52-53
Specs	
1. Fitting type	Threaded Saddle Flg
2. Material	FRP - A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C51-54
Specs	B23
1. Fitting type	Flanged Saddle
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	1" - 8"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C51-64
Specs	B28 C23 C28
1. Fitting type	Flanged Saddle
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	¾" - 6"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C52-54
Specs	B23
1. Fitting type	Threaded Saddle Flg
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	1" - 6"
7. Additional requirement	-

Commodity Code	C51-55
Specs	
1. Fitting type	Flanged Saddle
2. Material	FRP - Bisphenol A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C52-55
Specs	
1. Fitting type	Threaded Saddle Flg
2. Material	FRP - Bisphenol A Epoxy vinylester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C52-56
Specs	B26
1. Fitting type	Threaded Saddle Flg
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	1" - 1 ½"
7. Additional requirement	-

Commodity Code	C52-57
Specs	B27
1. Fitting type	Threaded Saddle Flg
2. Material	FRP - Epoxy vinyl ester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	1" - 1 ½"
7. Additional requirement	-

Commodity Code	C52-64
Specs	B28 C23 C28
1. Fitting type	Threaded Saddle Flg
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-

B12.2.32 SOCKOLET

Commodity Code	C55-02
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Fitting type	Socketlet
2. Material	ASTM A105
3. Standard	MSS SP-97
4. Pressure class or thickness	3000, 6000
5. End connections	2" - 24" 9000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-04
Specs	B6 B19 C6 E6 F6
1. Fitting type	Socketlet
2. Material	ASTM A350 Gr LF2 Cl 1
3. Standard	MSS SP-97
4. Pressure class or thickness	3000, 6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-14
Specs	
1. Fitting type	Socketlet
2. Material	ASTM A182 Gr F316L
3. Standard	MSS SP-97
4. Pressure class or thickness	3000, 6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-26
Specs	
1. Fitting type	Socketlet
2. Material	ASTM A182 Gr F316
3. Standard	MSS SP-97
4. Pressure class or thickness	3000, 6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-27
Specs	B16 B16 E16 G16P G16
1. Fitting type	Socketlet
2. Material	ASTM A182 Gr F51 (UNS S31803)
3. Standard	MSS SP-97
4. Pressure class or thickness	3000, 6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-30
Specs	B12 C12 G12
1. Fitting type	Socketlet
2. Material	ASTM A182 Gr F55 (UNS S32760)
3. Standard	MSS SP-97
4. Pressure class or thickness	3000, 6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-33
Specs	B30 C30 E30
1. Fitting type	Socketlet
2. Material	ASTM B366 (UNS N06625)
3. Standard	MSS SP-97
4. Pressure class or thickness	3000, 6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-35
Specs	B7
1. Fitting type	Socketlet
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Pressure class or thickness	-
5. End connections	Capillary
6. Size Range (NPS)	½" - 2"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-43
Specs	B3 E3 G3 C3.
1. Fitting type	Socketlet
2. Material	ASTM A182 Gr F316/316L
3. Standard	MSS SP-97
4. Pressure class or thickness	3000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-62
Specs	B50
1. Fitting type	Socketlet
2. Material	ASTM A182 Gr F310H
3. Standard	MSS SP-97
4. Pressure class or thickness	3000, 6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C55-63
Specs	E34
1. Fitting type	Socketlet
2. Material	ASTM A182 Gr F22 Cl 3 (K21590)
3. Standard	MSS SP-97
4. Pressure class or thickness	6000
5. End connections	Socket weld
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.33 SWEEPOLET

Commodity Code	C57-43
Specs	B3 C3.
1. Fitting type	Sweepolet
2. Material	ASTM A182 Gr F316/316L
3. Standard	MSS SP-97
4. Pressure class or thickness	-
5. End connections	Beveled end
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.34 COMPRESSION FITTING & ADAPTER

Commodity Code	C60-40
Specs	T60A
1. Fitting type	Compression Fitting & adapter
2. Material	Compression fitting with double ferrule, body AISI 316, ferrules and nuts in AISI 316.
3. Standard	according to manufacturer
4. Pressure class or thickness	6000
5. End connections	Outside Diameter x NPT Thread, Outside Diameter x Outside Diameter, Outside Diameter x Socket Weld
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.35 CONCENTRIC REDUCING, FRP

Commodity Code	C61-52
Specs	B22
1. Fitting type	Concentric Reducing, FRP
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	10 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 48"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C61-53
Specs	
1. Fitting type	Concentric Reducing, FRP
2. Material	FRP - A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C61-54
Specs	B23
1. Fitting type	Concentric Reducing, FRP
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Butt-Strap
6. Size Range (NPS)	2" - 48" Bell-Spigot
6. Size Range (NPS)	1 ½" - 64"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C61-55
Specs	
1. Fitting type	Concentric Reducing, FRP
2. Material	FRP - Bisphenol A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C61-56
Specs	B26
1. Fitting type	Concentric Reducing, FRP
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C61-57
Specs	B27
1. Fitting type	Concentric Reducing, FRP
2. Material	FRP - Epoxy vinyl ester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 12"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C61-64
Specs	B28 C23 C28
1. Fitting type	Concentric Reducing, FRP
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	25 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" - 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.36 ECCENTRIC REDUCING, FRP

Commodity Code	C62-52
Specs	B22
1. Fitting type	Eccentric Reducing, FRP
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	10 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 40"
7. Additional requirement	-

Commodity Code	C62-53
Specs	
1. Fitting type	Eccentric Reducing, FRP
2. Material	FRP - A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C62-54
Specs	B23
1. Fitting type	Eccentric Reducing, FRP
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Butt-Strap
	2" - 48" Bell-Spigot
6. Size Range (NPS)	2" - 64"
7. Additional requirement	-

Commodity Code	C62-55
Specs	
1. Fitting type	Eccentric Reducing, FRP
2. Material	FRP - Bisphenol A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-

Commodity Code	C62-56
Specs	B26
1. Fitting type	Eccentric Reducing, FRP
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 36"
7. Additional requirement	-

Commodity Code	C62-57
Specs	B27
1. Fitting type	Eccentric Reducing, FRP
2. Material	FRP - Epoxy vinyl ester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 12"
7. Additional requirement	-

Commodity Code	C62-64
Specs	B28 C23 C28
1. Fitting type	Eccentric Reducing, FRP
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	25 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1" - 40"
7. Additional requirement	-

B12.2.37 FRP REDUCING TEE

Commodity Code	C63-52
Specs	B22
1. Fitting type	FRP Reducing Tee
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	10 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C63-53
Specs	
1. Fitting type	FRP Reducing Tee
2. Material	FRP - A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 10bar@85°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C63-54
Specs	B23
1. Fitting type	FRP Reducing Tee
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Butt-Strap
	2" - 48" Bell-Spigot
6. Size Range (NPS)	2" - 52"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C63-55
Specs	
1. Fitting type	FRP Reducing Tee
2. Material	FRP - Bisphenol A Epoxy vinyl ester resins reinforced with fiberglass type E or E-CR. Design pressure 16bar@90°C.
3. Standard	ISO 14692
4. Pressure class or thickness	-
5. End connections	-
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C63-56
Specs	B26
1. Fitting type	FRP Reducing Tee
2. Material	FRP MDA cured Bisphenol A Epoxy resin with type E or E-CR.
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 36"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C63-57
Specs	B27
1. Fitting type	FRP Reducing Tee
2. Material	FRP - Epoxy vinyl ester resins (bisphenol A or brominated) reinforced with fiberglass type E-CR, inner liner with fiberglass veils type C. Design pressure 16bar@85°C
3. Standard	ISO 14692
4. Pressure class or thickness	16 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	2" - 3"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	C63-64
Specs	B28 C23 C28
1. Fitting type	FRP Reducing Tee
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Design pressure 25bar@90°C
3. Standard	ISO 14692
4. Pressure class or thickness	25 bar
5. End connections	Bell-Spigot, Butt-Strap
6. Size Range (NPS)	1 ½" - 40"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.2.38 FRP STUB END

Commodity Code	C64-54
Specs	B23

Commodity Code	C64-55
Specs	

Commodity Code	C64-56
Specs	B26

Commodity Code	C64-57
Specs	

Commodity Code	C64-64
Specs	B28 C23 C28

3. NIPPLE

B12.3.1 CONNECTOR NIPPLE

Commodity Code	N-A335
Specs	B7
1. Nipple type	Connector Nipple
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Schedule (SCH) or thickness	-
5. End connections	Threaded NPT Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-A735
Specs	B7
1. Nipple type	Connector Nipple
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Schedule (SCH) or thickness	-
5. End connections	Female NPT Thread x Female Capilar
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-A835
Specs	B7
1. Nipple type	Connector Nipple
2. Material	Cu-Ni 90/10 (UNS C7060X)
3. Standard	EEMUA 234
4. Schedule (SCH) or thickness	-
5. End connections	Male NPT Thread x Female Capilar
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.3.2 SWAGE CONCENTRIC NIPPLE

Commodity Code	N-C103
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A234 Gr WPB
3. Standard	MSS SP-95
4. schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C105
Specs	B6 B19 C6 E6 F6
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A420 Gr WPL6
3. Standard	MSS SP-95
4. schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C129
Specs	B16 C16 E16 G16
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A815 (UNS S31803)
3. Standard	MSS SP-95
4. schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C132
Specs	B12 C12 G12
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A815 (UNS S32760)
3. Standard	MSS SP-95
4. schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C133
Specs	B30 C30 E30
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM B366 (UNS N06625)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C144
Specs	B3 E3 G3 C3.
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A403 Gr WP316/316L
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C203
Specs	B14 C11
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A234 Gr WPB
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1 ½" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C229
Specs	H16
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A815 (UNS S31803)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1 ½" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C232
Specs	J12
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A815 (UNS S32760)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1 ½" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C233
Specs	H30
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM B366 (UNS N06625)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1 ½" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C244
Specs	H3
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A403 Gr WP316/316L
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C403
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A234 Gr WPB
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C405
Specs	B6 B19 C6 E6 F6
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A420 Gr WPL6
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C422
Specs	E9 E10 G10
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C429
Specs	B16 C16 E16 G16
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A815 (UNS S31803)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C432
Specs	B12 C12 G12
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A815 (UNS S32760)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C433
Specs	B30 C30 E30
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM B366 (UNS N06625)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-C444
Specs	B3 E3 G3 C3.
1. Nipple type	Swage Concentric Nipple
2. Material	ASTM A403 Gr WP316/316L
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.3.3 SWAGE ECCENTRIC NIPPLE

Commodity Code	N-E103
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A234 Gr WPB
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E105
Specs	B6 B19 C6 E6 F6
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A420 Gr WPL6
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E129
Specs	B16 C16 E16 G16
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A815 (UNS S31803)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E132
Specs	B12 C12 G12
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A815 (UNS S32760)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E133
Specs	B30 C30 E30
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM B366 (UNS N06625)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E144
Specs	B3 E3 G3 C3.
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A403 Gr WP316/316L
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E203
Specs	B14 C11
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A234 Gr WPB
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1 ½" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E229
Specs	H16
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A815 (UNS S31803)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1 ½" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E232
Specs	J12
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A815 (UNS S32760)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1 ½" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E233
Specs	H30
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM B366 (UNS N06625)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1 ½" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E244
Specs	H3
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A403 Gr WP316/316L
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E403
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A234 Gr WPB
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E405
Specs	B6 B19 C6 E6 F6
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A420 Gr WPL6
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E422
Specs	E9 E10 G10
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A860 WPHY65
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E429
Specs	B16 C12 C16 E16 G16
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A815 (UNS S31803)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E432
Specs	B12 G12
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A815 (UNS S32760)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E433
Specs	B30 C30 E30
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM B366 (UNS N06625)
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	¾" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-E444
Specs	B3 E3 G3 C3.
1. Nipple type	Swage Eccentric Nipple
2. Material	ASTM A403 Gr WP316/316L
3. Standard	MSS SP-95
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Large End x Plain Small End
6. Size Range (NPS)	2" - 4"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

B12.3.4 STRAIGHT NIPPLE

Commodity Code	N-S120
Specs	B4 B9 B10 B17 C4 C8 C10 E4 E8 E9 E10 G10
1. Nipple type	Straight Nipple
2. Material	API 5L Gr B PSL 1 seamless
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S123
Specs	
1. Nipple type	Straight Nipple
2. Material	ASTM A333 Gr 8
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S128
Specs	B16 C16 E16 G16P G16
1. Nipple type	Straight Nipple
2. Material	ASTM A790 (UNS S31803)
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S131
Specs	B12 C12 G12
1. Nipple type	Straight Nipple
2. Material	ASTM A790 (UNS S32760)
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S137
Specs	B6 B19 C6 E6 F6
1. Nipple type	Straight Nipple
2. Material	ASTM A333 Gr 6
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S139
Specs	B30 C30 E30
1. Nipple type	Straight Nipple
2. Material	ASTM B444 Gr 1 (UNS N06625)
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S140
Specs	
1. Nipple type	Straight Nipple
2. Material	Straight Nipple, NPT nut, ASTM A312 Grade TP 316, SC, ASTM A733
3. Standard	-
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S141
Specs	B50
1. Nipple type	Straight Nipple
2. Material	ASTM A312 TP310H
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	½" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S145
Specs	B3 E3 G3 C3.
1. Nipple type	Straight Nipple
2. Material	ASTM A312 TP316/316L
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S158
Specs	E34
1. Nipple type	Straight Nipple
2. Material	ASTM A335 P22 (UNS K21590) SML
3. Standard	-
4. Schedule (SCH) or thickness	-
5. End connections	Plain Both Ends
6. Size Range (NPS)	¾" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S228
Specs	H16
1. Nipple type	Straight Nipple
2. Material	ASTM A790 (UNS S31803)
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S231
Specs	H12P J12
1. Nipple type	Straight Nipple
2. Material	ASTM A790 (UNS S32760)
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S239
Specs	H30
1. Nipple type	Straight Nipple
2. Material	ASTM B444 Gr 1 (UNS N06625)
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	1" - 1 ½"
7. Additional requirement	-
8. Weight	-
9. Dimension	-

Commodity Code	N-S245
Specs	H3
1. Nipple type	Straight Nipple
2. Material	ASTM A312 TP316/316L
3. Standard	ASTM A733
4. Schedule (SCH) or thickness	-
5. End connections	Bevel Both Ends
6. Size Range (NPS)	-
7. Additional requirement	-
8. Weight	-
9. Dimension	-

4. FLANGES

B12.4.1 INTEGRAL FRP FLANGE

Commodity Code	F-10-1T
Specs	B22
1. Flange type	Integral FRP Flange
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150
4. Pressure class	10 bar
5. Flange facing	Flat Face
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 40"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-16-1S
Specs	B27
1. Flange type	Integral FRP Flange
2. Material	FRP - Epoxy vinyléster resins (bisphenol A or brominated) reinforced with fiberglass type E-CR. Suitable for 85°C.
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150
4. Pressure class	16 bar
5. Flange facing	Flat Face
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 12"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-16-1U
Specs	
1. Flange type	Integral FRP Flange
2. Material	FRP - MDA cured Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR.
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150
4. Pressure class	16 bar
5. Flange facing	Flat Face
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.2 BLIND FLANGE

Commodity Code	F-10-ET
Specs	B22
1. Flange type	Blind Flange
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150
4. Pressure class	10 bar
5. Flange facing	Flat Face
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 40"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-S2
Specs	G10
1. Flange type	Blind Flange
2. Material	ASTM A105
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-S3
Specs	F6
1. Flange type	Blind Flange
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 18"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-SC
Specs	G10
1. Flange type	Blind Flange
2. Material	ASTM A694 Gr F65
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-SG
Specs	G16P G16
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F51
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-SH
Specs	G12
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F55
3. Standard	-
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-SX
Specs	G3
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	-
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 20"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-E2
Specs	B14
1. Flange type	Blind Flange
2. Material	ASTM A105
3. Standard	-
4. Pressure class	Class 150
5. Flange facing	Flat Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 44"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-L2
Specs	B4 B9 B10 B11 B17
1. Flange type	Blind Flange
2. Material	ASTM A105
3. Standard	-
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 44"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-L3
Specs	B6 B19
1. Flange type	Blind Flange
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	½" - 24" ASME B16.5 26" - 40" ASME B16.47 Series A
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 40"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-LB
Specs	B30
1. Flange type	Blind Flange
2. Material	ASTM A105 Cladded
3. Standard	4" - 24" ASME B16.5 26" - 30" ASME B16.47 Series A
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 30"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-LG
Specs	B16
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F51
3. Standard	½" - 24" ASME B16.5 26" - 40" ASME B16.47 Series A
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 40"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-LH
Specs	B12
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F55
3. Standard	-
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 36"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-LL
Specs	B30
1. Flange type	Blind Flange
2. Material	ASTM B564 (UNS N06625)
3. Standard	-
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-LX
Specs	B3
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	½" - 24" ASME B16.5 26" - 44" ASME B16.47 Series A
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 44"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-LY
Specs	B7
1. Flange type	Blind Flange
2. Material	ASTM A105 Thermal Spray coated (note 126)
3. Standard	½" - 24" ASME B16.5 28" - 36" ASME B16.47 Series A
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 36"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-16-ES
Specs	B27
1. Flange type	Blind Flange
2. Material	FRP - Epoxy vinyléster resins (bisphenol A or brominated) reinforced with fiberglass type E-CR. Suitable for 85°C.
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150
4. Pressure class	16 bar
5. Flange facing	Flat Face
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 12"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-16-EU
Specs	B26
1. Flange type	Blind Flange
2. Material	FRP - MDA cured Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR.
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150
4. Pressure class	16 bar
5. Flange facing	Flat Face
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 36"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-16-LT
Specs	B23
1. Flange type	Blind Flange
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150
4. Pressure class	16 bar
5. Flange facing	Raised Face
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 52"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-20-LT
Specs	B28
1. Flange type	Blind Flange
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150, ASTM D4024 - Drilling acc. B16.5/B16.47 CL300
4. Pressure class	20 bar
5. Flange facing	Raised Face
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 40"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-2500-SJ
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A522 Type 1
3. Standard	-
4. Pressure class	Class 2500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 12"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-2500-SK
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A522 Type I Cladded
3. Standard	-
4. Pressure class	Class 2500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 12"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-25-LT	
Specs	C23 C28	
1. Flange type	Blind Flange	
2. Material	FRP - Bisphenol A Epoxy resins reinforced with fiberglass type E or E-CR. Suitable for 90°C.	
3. Standard	ASTM D4024 - Drilling acc. B16.5/B16.47 CL150	ASTM D4024 - Drilling acc. B16.5/B16.47 CL300
4. Pressure class	25 bar	
5. Flange facing	Raised Face	
6. Face finishing	-	
7. Coating	-	
8. Schedule (SCH) or thickness	-	
9. Size Range (NPS)	1" - 48"	
10. Additional requirement	-	
11. Weight	-	
12. Dimension	-	

Commodity Code	F-300-L2
Specs	C4 C8 C10 C11
1. Flange type	Blind Flange
2. Material	ASTM A105
3. Standard	ASME B16.5
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 32"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-L3
Specs	C6
1. Flange type	Blind Flange
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 30"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-LB
Specs	C30
1. Flange type	Blind Flange
2. Material	ASTM A105 Cladded
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 30"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-LG
Specs	C16
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F51
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 32"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-LH
Specs	C12
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F55
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 30"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-LL
Specs	C30
1. Flange type	Blind Flange
2. Material	ASTM B564 (UNS N06625)
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 3"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-LV
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A105 Epoxy coated
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-LW
Specs	B50
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F310H
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 56"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-LX	
Specs	C3.	
1. Flange type	Blind Flange	
2. Material	ASTM A182 Gr F316/316L	
3. Standard	½" - ¾"	ASME B16.5
	1" - 36"	ASME B16.47 Series A, ASME B16.5
4. Pressure class	Class 300	
5. Flange facing	Raised Face	
6. Face finishing	125-250 µin. surface finish	
7. Coating	-	
8. Schedule (SCH) or thickness	-	
9. Size Range (NPS)	½" - 38"	
10. Additional requirement	-	
11. Weight	-	
12. Dimension	-	

Commodity Code	F-300-SW
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F310H
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 36"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-350-4X
Specs	B3 E3 G3 C3.
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	ISO 6162-1
4. Pressure class	max 350 bar
5. Flange facing	-
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 3"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-420-4X
Specs	H3
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	ISO 6162-2
4. Pressure class	max 420 bar
5. Flange facing	-
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 3"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-L1
Specs	E8
1. Flange type	Blind Flange
2. Material	ASTM A105 Galvanized
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 8"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-L2
Specs	E9 E10
1. Flange type	Blind Flange
2. Material	ASTM A105
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 8"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-L3	
Specs	E6	
1. Flange type	Blind Flange	
2. Material	ASTM A350 Gr LF2 Class 1	
3. Standard	½" - 24"	ASME B16.5
	26"	ASME B16.47 Series A
4. Pressure class	Class 600	
5. Flange facing	Raised Face	
6. Face finishing	125-250 µin. surface finish	
7. Coating	-	
8. Schedule (SCH) or thickness	-	
9. Size Range (NPS)	½" - 26"	
10. Additional requirement	-	
11. Weight	-	
12. Dimension	-	

Commodity Code	F-600-LC
Specs	E9 E10
1. Flange type	Blind Flange
2. Material	ASTM A694 Gr F65
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-LD
Specs	E30
1. Flange type	Blind Flange
2. Material	ASTM A694 Gr F65 Cladded
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-LG
Specs	E16
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F51
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 18"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-LL
Specs	E30
1. Flange type	Blind Flange
2. Material	ASTM B564 (UNS N06625)
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 3"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-LX
Specs	E3
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 32"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-S2
Specs	E4
1. Flange type	Blind Flange
2. Material	ASTM A105
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-S3
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-S7
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F316L
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-SB
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A105 Cladded
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-SC
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A694 Gr F65
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-SE
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A350 Gr LF3 Cladded
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-SZ
Specs	E34
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F22 Cl 3 (K21590)
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 14"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-SG
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F51
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-900-S3
Specs	F6
1. Flange type	Blind Flange
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	ASME B16.5
4. Pressure class	Class 900
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	3" - 20"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-SH
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A182 Gr F55
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 14"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-900-SB
Specs	
1. Flange type	Blind Flange
2. Material	ASTM A105 Cladded
3. Standard	-
4. Pressure class	Class 900
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-SL
Specs	
1. Flange type	Blind Flange
2. Material	ASTM B564 (UNS N06625)
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.3 WELDING NECK FLANGE API 6BX

Commodity Code	F-10000-6X
Specs	C3.
1. Flange type	Welding Neck Flange API 6BX
2. Material	ASTM A182 Gr F316/316L
3. Standard	API 6A
4. Pressure class	API 10000
5. Flange facing	studded type 6BX (stud and nuts included)
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	ASME SizeAPI Size2"1 1⁄8"3"2 1⁄8"4"2 1⁄8"6"4 1⁄8"8" - 10"7 1⁄8"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-10000-RH
Specs	J12
1. Flange type	Welding Neck Flange API 6BX
2. Material	ASTM A182 Gr F55
3. Standard	API 6A
4. Pressure class	API 10000
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	ASME SizeAPI Size1" - 2"1 1⁄8"3"2 1⁄8"4"2 1⁄8"6"4 1⁄8"8" - 10"7 1⁄8"12" - 14"9"16"11"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.4 BLIND FLANGE API 6BX

Commodity Code	F-10000-SH
Specs	J12

B12.4.5 FLANGE X FEMALE NPT

Commodity Code	F-10000-TG
Specs	J12
1. Flange type	-
2. Material	-
3. Standard	-
4. Pressure class	-
5. Flange facing	-
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.6 WELDING NECK FLANGE (WN)

Commodity Code	F-1500-R3
Specs	F6
1. Flange type	Welding Neck Flange (WN)
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 18"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-RX
Specs	G3
1. Flange type	Welding Neck Flange (WN)
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 20"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-RC
Specs	G10
1. Flange type	Welding Neck Flange (WN)
2. Material	ASTM A694 Gr F65
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-D2
Specs	B14
1. Flange type	Welding Neck Flange (WN)
2. Material	ASTM A105
3. Standard	1" - 24"ASME B16.526" - 44"ASME B16.47 Series A
4. Pressure class	Class 150
5. Flange facing	Flat Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 44"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-RG
Specs	G16P G16
1. Flange type	Welding Neck Flange (WN)
2. Material	ASTM A182 Gr F51
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-K2
Specs	B4 B9 B10 B11 B17
1. Flange type	Welding Neck Flange (WN)
2. Material	ASTM A105
3. Standard	¾" - 24"ASME B16.526" - 44"ASME B16.47 Series A
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	¾" - 44"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-RH
Specs	G12
1. Flange type	Welding Neck Flange (WN)
2. Material	ASTM A182 Gr F55
3. Standard	-
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-K3
Specs	B6 B19
1. Flange type	Welding Neck Flange (WN)
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	2" - 24"ASME B16.526" - 44"ASME B16.47 Series A
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 µin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 44"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-KL
Specs	B30
1. Flange type	welding Neck Flange (WN)
2. Material	ASTM B564 (UNS N06625)
3. Standard	ASME B16.5
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 3"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-K2	
Specs	C4 C8 C10 C11	
1. Flange type	welding Neck Flange (WN)	
2. Material	ASTM A105	
3. Standard	2" - 24"	ASME B16.5
	26" - 32"	ASME B16.47 Series A
4. Pressure class	Class 300	
5. Flange facing	Raised Face	
6. Face finishing	125-250 µin. surface finish	
7. Coating	-	
8. Schedule (SCH) or thickness	-	
9. Size Range (NPS)	2" - 32"	
10. Additional requirement	-	
11. weight	-	
12. Dimension	-	

Commodity Code	F-300-KH	
Specs	C12	
1. Flange type	welding Neck Flange (WN)	
2. Material	ASTM A182	Gr F55
3. Standard	2" - 24"	ASME B16.5
	26" - 30"	ASME B16.47 Series A
4. Pressure class	Class 300	
5. Flange facing	Raised Face	
6. Face finishing	125-250 μin. surface finish	
7. Coating	-	
8. Schedule (SCH) or thickness	-	
9. Size Range (NPS)	2" - 30"	
10. Additional requirement	-	
11. Weight	-	
12. Dimension	-	

Commodity Code	F-300-RW
Specs	
1. Flange type	welding Neck Flange (WN)
2. Material	ASTM A182 Gr F310H
3. Standard	-
4. Pressure class	Class 300
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 µin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 36"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-KD
Specs	E30
1. Flange type	welding Neck Flange (WN)
2. Material	ASTM A694 Gr F65 Cladded
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 μ m. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-R2
Specs	E4
1. Flange type	welding Neck Flange (WN)
2. Material	ASTM A105
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" – 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-RC
Specs	
1. Flange type	welding Neck Flange (WN)
2. Material	ASTM A694 Gr F65
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μ in.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-RL
Specs	
1. Flange type	welding Neck Flange (WN)
2. Material	ASTM B564 (UNS N06625)
3. Standard	-
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μ m.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-900-RB
Specs	
1. Flange type	welding Neck Flange (WN)
2. Material	ASTM A105 Cladded
3. Standard	-
4. Pressure class	Class 900
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μin.
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-1500-QH
Specs	G12
1. Flange type	Socket weld Flange (SW)
2. Material	ASTM A182 Gr F55
3. Standard	ASME B16.5
4. Pressure class	Class 1500
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μ m.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-150-JG
Specs	B16
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A182 Gr F51
3. Standard	ASME B16.5
4. Pressure class	Class 150
5. Flange facing	Raised Face
6. Face finishing	125-250 μ m. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-J2
Specs	C4 C10
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A105
3. Standard	ASME B16.5
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-300-JL
Specs	c30
1. Flange type	Socket weld Flange (SW)
2. Material	ASTM B564 (UNS N06625)
3. Standard	ASME B16.5
4. Pressure class	Class 300
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 3"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-J2
Specs	E9 E10
1. Flange type	Socket weld Flange (SW)
2. Material	ASTM A105
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-J3
Specs	E6
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-Q2
Specs	E4
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A105
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-QL
Specs	
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM B564 (UNS N06625)
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.8 BACKING FLANGE

Commodity Code	F-16-YV
Specs	B23 B26
1. Flange type	Backing Flange
2. Material	ASTM A105 Epoxy coated
3. Standard	Drilling acc. B16.5/B16.47 CL150
4. Pressure class	16 bar
5. Flange facing	Raised Face
6. Face finishing	-
7. Coating	Epoxy coated
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 52"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.9 SLIP ON FLANGE (SO)

Commodity Code	F-20-HM
Specs	B7
1. Flange type	Slip On Flange (SO)
2. Material	Cu-Ni 90/10 (UNS 7060X)
3. Standard	EEMUA 234
4. Pressure class	20 bar
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.10 WELDING NECK COMPACT FLANGE

Commodity Code	F-2500-UD
Specs	H30
1. Flange type	Welding Neck Compact Flange
2. Material	ASTM A694 Gr F65 Cladded
3. Standard	ISO 27509
4. Pressure class	Class 2500
5. Flange facing	IX seal ring
6. Face finishing	Surface finish accordig to ISO 4287
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-2500-UX
Specs	H3
1. Flange type	Welding Neck Compact Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	ISO 27509
4. Pressure class	Class 2500
5. Flange facing	IX seal ring
6. Face finishing	Surface finish accordig to ISO 4287
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 16"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.11 BLIND COMPACT FLANGE

Commodity Code	F-600-JG
Specs	E16
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A182 Gr F51
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-Q3
Specs	
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A350 Gr LF2 Class 1
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-20-Y2
Specs	B7
1. Flange type	Backing Flange
2. Material	ASTM A105
3. Standard	EEMUA 234
4. Pressure class	20 bar
5. Flange facing	Raised Face
6. Face finishing	-
7. Coating	Epoxy coated
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	2" - 36"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-JL
Specs	E30
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM B564 (UNS N06625)
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-Q7
Specs	
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A182 Gr F316L
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-20-YV
Specs	B28
1. Flange type	Backing Flange
2. Material	ASTM A105 Epoxy coated
3. Standard	Drilling acc. B16.5/B16.47 CL150
4. Pressure class	20 bar
5. Flange facing	Raised Face
6. Face finishing	-
7. Coating	Epoxy coated
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	¾" - 40"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-JX
Specs	E3
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A182 Gr F316/316L
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Raised Face
6. Face finishing	125-250 μin. surface finish
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 1 ½"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-600-QG
Specs	
1. Flange type	Socket Weld Flange (SW)
2. Material	ASTM A182 Gr F51
3. Standard	ASME B16.5
4. Pressure class	Class 600
5. Flange facing	Ring Type Joint
6. Face finishing	Surface finish not exceed 63 μin.
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	-
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-25-YV
Specs	C23 C28
1. Flange type	Backing Flange
2. Material	ASTM A105 Epoxy coated
3. Standard	Drilling acc. B16.5/B16.47 CL300
4. Pressure class	25 bar
5. Flange facing	Raised Face
6. Face finishing	-
7. Coating	Epoxy coated
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 40"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-2500-VD
Specs	H30
1. Flange type	Blind Compact Flange
2. Material	ASTM A694 Gr F65 Cladded
3. Standard	ISO 27509
4. Pressure class	Class 2500
5. Flange facing	IX seal ring
6. Face finishing	Surface finish accordig to ISO 4287
7. Coating	Inconel (UNS N06625) clad
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	4" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-2500-VX
Specs	H3
1. Flange type	Blind Compact Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	ISO 27509
4. Pressure class	Class 2500
5. Flange facing	IX seal ring
6. Face finishing	Surface finish accordig to ISO 4287
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 16"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

B12.4.12 HYDRAULIC ONE-PIECE FLANGE

Commodity Code	F-350-3X
Specs	B3 E3 G3 C3.
1. Flange type	Hydraulic One-Piece Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	ISO 6162-1
4. Pressure class	max 350 bar
5. Flange facing	-
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	½" - 3"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-2500-VG
Specs	H16
1. Flange type	Blind Compact Flange
2. Material	ASTM A182 Gr F51
3. Standard	ISO 27509
4. Pressure class	Class 2500
5. Flange facing	IX seal ring
6. Face finishing	Surface finish accordig to ISO 4287
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 24"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-2500-VH
Specs	H12P
1. Flange type	Blind Compact Flange
2. Material	ASTM A182 Gr F55
3. Standard	ISO 27509
4. Pressure class	Class 2500
5. Flange facing	IX seal ring
6. Face finishing	Surface finish accordig to ISO 4287
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 28"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-2500-VL
Specs	H30
1. Flange type	Blind Compact Flange
2. Material	ASTM B564 (UNS N06625)
3. Standard	ISO 27509
4. Pressure class	Class 2500
5. Flange facing	IX seal ring
6. Face finishing	Surface finish accordig to ISO 4287
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 6"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

Commodity Code	F-420-3X
Specs	H3
1. Flange type	Hydraulic One-Piece Flange
2. Material	ASTM A182 Gr F316/316L
3. Standard	ISO 6162-2
4. Pressure class	max 420 bar
5. Flange facing	-
6. Face finishing	-
7. Coating	-
8. Schedule (SCH) or thickness	-
9. Size Range (NPS)	1" - 3"
10. Additional requirement	-
11. Weight	-
12. Dimension	-

5. GASKET

B12.5.1 RING-JOINT GASKET

Commodity Code	J-10000-AT
Specs	J12
1. Gasket type	BX Ring type
2. Material	SS AISI 316
3. Gasket standard	API 6A
4. Thickness	-
5. Hardness	maximum hardness 83 Rockwell B
6. Flange Type	API 10000, Ring Type Joint
7. Size Range (NPS)	1" - 16"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-1500-AN
Specs	G10
1. Gasket type	Oval Type R Ring
2. Material	Carbon Steel
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	maximum hardness 90 Brinell
6. Flange Type	Class 1500, Ring Type Joint
7. Size Range (NPS)	½" - 24"
8. Additional requirements	Zn-Ni coating
9. Weight	-
10. Dimension	-

Commodity Code	J-1500-AT
Specs	F6 G3 G12 G16P G16
1. Gasket type	Oval Type R Ring
2. Material	SS AISI 316
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	maximum hardness 160 Brinell
6. Flange Type	Class 1500, Ring Type Joint
7. Size Range (NPS)	½" - 24"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-2500-AW
Specs	
1. Gasket type	Oval Type R Ring
2. Material	ASTM A522 Type I
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	maximum hardness 210 Brinell
6. Flange Type	Class 2500, Ring Type Joint
7. Size Range (NPS)	1" - 12"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-2500-BU
Specs	H12P H16
1. Gasket type	IX Ring type
2. Material	Duplex Stainless Steel, ASTM A182 F51
3. Gasket standard	ISO 27509
4. Thickness	-
5. Hardness	-
6. Flange Type	Class 2500, Metallic Seal Joint
7. Size Range (NPS)	1" - 28"
8. Additional requirements	PTFE coating
9. Weight	-
10. Dimension	-

Commodity Code	J-2500-BV
Specs	H3 H30
1. Gasket type	IX Ring type
2. Material	Inconel 625
3. Gasket standard	ISO 27509
4. Thickness	-
5. Hardness	-
6. Flange Type	Class 2500, Metallic Seal Joint
7. Size Range (NPS)	1" - 24"
8. Additional requirements	PTFE coating
9. Weight	-
10. Dimension	-

Commodity Code	J-2500-BW
Specs	
1. Gasket type	IX Ring type
2. Material	ASTM A522 Type I
3. Gasket standard	ISO 27509
4. Thickness	-
5. Hardness	-
6. Flange Type	Class 2500, Metallic Seal Joint
7. Size Range (NPS)	14" - 16"
8. Additional requirements	PTFE coating
9. Weight	-
10. Dimension	-

Commodity Code	J-300-AT
Specs	
1. Gasket type	Oval Type R Ring
2. Material	SS AISI 316
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	maximum hardness 160 Brinell
6. Flange Type	Class 300, Ring Type Joint
7. Size Range (NPS)	½" - 48"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-600-A6
Specs	E34
1. Gasket type	Oval Type R Ring
2. Material	ASTM A182 Gr F22 C1 1 (K21590)
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	-
6. Flange Type	Class 600, Ring Type Joint
7. Size Range (NPS)	½" - 14"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-600-AN
Specs	E4
1. Gasket type	Oval Type R Ring
2. Material	Carbon Steel
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	maximum hardness 90 Brinell
6. Flange Type	Class 600, Ring Type Joint
7. Size Range (NPS)	½" - 24"
8. Additional requirements	Zn-Ni coating
9. Weight	-
10. Dimension	-

Commodity Code	J-600-AT
Specs	
1. Gasket type	Oval Type R Ring
2. Material	SS AISI 316
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	maximum hardness 160 Brinell
6. Flange Type	Class 600, Ring Type Joint
7. Size Range (NPS)	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-600-AV
Specs	
1. Gasket type	Oval Type R Ring
2. Material	Inconel 625
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	maximum hardness 230 Brinell
6. Flange Type	Class 600, Ring Type Joint
7. Size Range (NPS)	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-900-AT
Specs	F6
1. Gasket type	Oval Type R Ring
2. Material	SS AISI 316
3. Gasket standard	API 6A, ASME B16.20
4. Thickness	-
5. Hardness	maximum hardness 160 Brinell
6. Flange Type	Class 900, Ring Type Joint
7. Size Range (NPS)	3" - 20"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

B12.5.2 FLAT GASKET

Commodity Code	J-150-C3
Specs	B22

Commodity Code	J-150-CC
Specs	B14 B27

Commodity Code	J-150-P3
Specs	B23 B28

Commodity Code	J-150-P4
Specs	B7

Commodity Code	J-150-PC
Specs	B11 B26

Commodity Code	J-300-P3
Specs	C23 C28

Commodity Code	J-300-PA
Specs	C8

Commodity Code	J-300-PC
Specs	C11

B12.5.3 ISOLATION GASKET KIT

Commodity Code	J-1500-HZ
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	AISI 316 core with G-10 composite facing layers, and PTFE sealing ring.
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	150 °C
9. Flange Type	Class 1500
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-150-DA
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	Aramid fiber with NBR rubber
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	75 °C
9. Flange Type	Class 150
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-150-DY
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	Phenolic gasket with Nitrile rubber facing layers
3. Bolt sleeves material (1 per bolt)	Mylar
4. Non metallic washers material (2 per bolt)	Phenolic
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	75 °C
9. Flange Type	Class 150
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-150-FA
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	Aramid fiber with NBR rubber
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	75 °C
9. Flange Type	Class 150
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-150-FX
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	AISI 316 grooved core with PTFE facing layers
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	150 °C
9. Flange Type	Class 150
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-150-FY
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	Phenolic gasket with Nitrile rubber facing layers
3. Bolt sleeves material (1 per bolt)	Mylar
4. Non metallic washers material (2 per bolt)	Phenolic
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	75 °C
9. Flange Type	Class 150
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-150-FZ
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	AISI 316 core with G-10 composite facing layers, and PTFE sealing ring.
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	150 °C
9. Flange Type	Class 150
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-2500-HZ
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	AISI 316 core with G-10 composite facing layers, and PTFE sealing ring.
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	150 °C
9. Flange Type	Class 2500
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-300-FA
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	Aramid fiber with NBR rubber
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	75 °C
9. Flange Type	Class 300
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-300-FX
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	AISI 316 grooved core with PTFE facing layers
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	150 °C
9. Flange Type	Class 300
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-300-FY
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	Phenolic gasket with Nitrile rubber facing layers
3. Bolt sleeves material (1 per bolt)	Mylar
4. Non metallic washers material (2 per bolt)	Phenolic
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	75 °C
9. Flange Type	Class 300
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-600-FX
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	AISI 316 grooved core with PTFE facing layers
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	150 °C
9. Flange Type	Class 600
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-600-FZ
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	AISI 316 core with G-10 composite facing layers, and PTFE sealing ring.
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	150 °C
9. Flange Type	Class 600
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

Commodity Code	J-900-HZ
Specs	
1. Gasket type	Isolation Gasket Kit
2. Gasket material (1 pc)	AISI 316 core with G-10 composite facing layers, and PTFE sealing ring.
3. Bolt sleeves material (1 per bolt)	NEMA Grade G-10
4. Non metallic washers material (2 per bolt)	NEMA Grade G-10
5. Metallic washers material (2 per bolt)	Hardened Carbon Steel, Zn-Ni coated bolt)
6. Gasket standard	-
7. Thickness	-
8. Temperature	150 °C
9. Flange Type	Class 900
10. Size Range (NPS)	-
11. Additional requirements	-
12. Weight	-
13. Dimension	-

B12.5.4 SPIRAL-WOUND GASKET

Commodity Code	J-150-EH
Specs	B3 B4 B6 B9 B10 B17 B19
1. Gasket type	Spiral-wound Gasket
2. Material	AISI 316 Stainless Steel windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering and inner rings in AISI 316
6. Flange Type	½" - 24" 1409, Class 150, Raised Face 26" - 44" 945, Class 150, Raised Face
7. Size Range (NPS)	½" - 44"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-150-EL
Specs	B12 B16
1. Gasket type	Spiral-wound Gasket
2. Material	Duplex SS (UNS S31803) windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering ring in AISI 316 and inner ring in Duplex Stainless Steel
6. Flange Type	½" - 24" 1409, Class 150, Raised Face, ASME B16.5, Class 150, Raised Face 26" - 40" 945, Class 150, Raised Face, ASME B16.47 A, Class 150, Raised Face 42" - 60" ASME B16.47 A, Class 150, Raised Face
7. Size Range (NPS)	½" - 60"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-150-EM
Specs	B30
1. Gasket type	Spiral-wound Gasket
2. Material	Inconel 625 windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering ring in AISI 316 and inner ring in Inconel 625
6. Flange Type	½" - 24" 1409, Class 150, Raised Face 26" - 30" 945, Class 150, Raised Face
7. Size Range (NPS)	½" - 30"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-300-E2
Specs	B50
1. Gasket type	Spiral-wound Gasket
2. Material	AISI 316 Stainless Steel windings with mica based filler (high temperature)
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering and inner rings in AISI 316
6. Flange Type	½" - 24" 1409, Class 300, Raised Face 26" - 56" 945, Class 300, Raised Face
7. Size Range (NPS)	½" - 56"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-300-EH
Specs	C4 C6 C10 C3.
1. Gasket type	Spiral-wound Gasket
2. Material	AISI 316 Stainless Steel windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering and inner rings in AISI 316
6. Flange Type	½" - 24" 1409, Class 300, Raised Face, ASME B16.5, Class 300, Raised Face 26" - 32" 945, Class 300, Raised Face, ASME B16.47 A, Class 300, Raised Face 34" - 38" 945, Class 300, Raised Face
7. Size Range (NPS)	½" - 38"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-300-EL
Specs	C12 C16
1. Gasket type	Spiral-wound Gasket
2. Material	Duplex SS (UNS S31803) windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering ring in AISI 316 and inner ring in Duplex Stainless Steel
6. Flange Type	½" - 24" 1409, Class 300, Raised Face, ASME B16.5, Class 300, Raised Face 26" - 32" 945, Class 300, Raised Face, ASME B16.47 A, Class 300, Raised Face 34" - 60" ASME B16.47 A, Class 300, Raised Face
7. Size Range (NPS)	½" - 60"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-300-EM
Specs	C30
1. Gasket type	Spiral-wound Gasket
2. Material	Inconel 625 windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering ring in AISI 316 and inner ring in Inconel 625
6. Flange Type	½" - 24" 1409, Class 300, Raised Face, ASME B16.5, Class 300, Raised Face 26" 945, Class 300, Raised Face, ASME B16.47 A, Class 300, Raised Face 28" - 30" 945, Class 300, Raised Face
7. Size Range (NPS)	½" - 30"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-600-EH
Specs	E3 E6 E8 E9 E10
1. Gasket type	Spiral-wound Gasket
2. Material	AISI 316 Stainless Steel windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering and inner rings in AISI 316
6. Flange Type	½" - 24" 1409, Class 600, Raised Face, ASME B16.5, Class 600, Raised Face 26" - 32" 945, Class 600, Raised Face
7. Size Range (NPS)	½" - 32"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-600-EL
Specs	E16
1. Gasket type	Spiral-wound Gasket
2. Material	Duplex SS (UNS S31803) windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering ring in AISI 316 and inner ring in Duplex Stainless Steel
6. Flange Type	½" - 18" 1409, Class 600, Raised Face, ASME B16.5, Class 600, Raised Face 20" - 24" ASME B16.5, Class 600, Raised Face 26" - 60" ASME B16.47 A, Class 600, Raised Face
7. Size Range (NPS)	½" - 60"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	J-600-EM
Specs	E30
1. Gasket type	Spiral-wound Gasket
2. Material	Inconel 625 windings with flexible graphite filler
3. Gasket standard	ASME B16.20
4. Thickness	4,4 mm
5. Centering and Inner rings	Centering ring in AISI 316 and inner ring in Inconel 625
6. Flange Type	1409, Class 600, Raised Face ½" - 16" ASME B16.5, Class 600, Raised Face
7. Size Range (NPS)	½" - 24"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

B12.5.5 GROOVED METAL GASKET

Commodity Code	J-300-G1	
Specs		
1. Gasket type	Grooved metal Gasket	
2. Material	AISI 316 grooved core with Mica based covering layers (high temperature)	
3. Gasket standard	ASME B16.20	
4. Thickness	4,4 mm	
5. Centering and Inner rings	Centering ring in AISI 316	
6. Flange Type	2" - 24"	1409, Class 300
	26" - 56"	945, Class 300
7. Size Range (NPS)	2" - 56"	
8. Additional requirements	-	

Commodity Code	P-150-01	
Specs	B4	
1. Item	Stud Bolt with 2 Heavy Hexagonal Nuts	
2. Bolt material	ASTM A193 Gr B7	
3. Nuts material	HEX HEAVY ASTM A194 GR 2H	
4. Bolt thread type	½" - 1"	ASME B1.1, UNC 2A
	1 ¼" - 3 ½"	ASME B1.1, UN 2A - 8 thd/in
5. Nut thread type	½" - 1"	ASME B1.1, UNC 2B
	1 ¼" - 3 ½"	ASME B1.1, UN 2B - 8 thd/in
6. Coating	-	
7. Size Range	½" - 3 ½"	
8. Additional requirements	-	
9. Weight	-	
10. Dimension	-	

Commodity Code	P-2500-13	
Specs	H3 H12P H16	
1. Item	Stud Bolt with 2 Heavy Hexagonal Nuts	
2. Bolt material	718 as per API6ACRA UNS N07718	
3. Nuts material	718 as per API6ACRA UNS N07718	
4. Bolt thread type	½" - 1"	ASME B1.1, UNC 2A
	1 ¼" - 3 ¼"	ASME B1.1, UN 2A - 8 thd/in
5. Nut thread type	½" - 1"	ASME B1.1, UNC 2B
	1 ¼" - 3 ¼"	ASME B1.1, UN 2B - 8 thd/in
6. Coating	-	
7. Size Range	½" - 3 ¼"	
8. Additional requirements	-	
9. Weight	-	
10. Dimension	-	

Commodity Code	P-300-10	
Specs	B50	
1. Item	Stud Bolt with 2 Heavy Hexagonal Nuts	
2. Bolt material	ASTM A453 Gr 660	
3. Nuts material	Hex heavy ASTM A453 Gr 660	
4. Bolt thread type	½" - 1"	ASME B1.1, UNC 2A
	1 ½" - 2 ¼"	ASME B1.1, UN 2A - 8 thd/in
5. Nut thread type	½" - 1"	ASME B1.1, UNC 2B
	1 ½" - 2 ¼"	ASME B1.1, UN 2B - 8 thd/in
6. Coating	-	
7. Size Range	½" - 2 ¼"	
8. Additional requirements	-	
9. Weight	-	
10. Dimension	-	

Commodity Code	P-600-07	
Specs	E8	
1. Item	Stud Bolt with 2 Heavy Hexagonal Nuts	
2. Bolt material	ASTM A193 Gr B7, Zn-Ni coated	
3. Nuts material	Hex heavy ASTM A194 Gr 2H, Zn-Ni coated	
4. Bolt thread type	½" - 1"	ASME B1.1, UNC 2A
	1 ⅝" - 3 ½"	ASME B1.1, UN 2A - 8 thd/in
5. Nut thread type	½" - 1"	ASME B1.1, UNC 2B
	1 ⅝" - 3 ½"	ASME B1.1, UN 2B - 8 thd/in
6. Coating	Zn-Ni ASTM B 841, C1 1, B/E Type, Gr 5-8, heat treatment according ASTM B849/B850	
7. Size Range	½" - 3 ½"	
8. Additional requirements	-	
9. Weight	-	
10. Dimension	-	

Commodity Code	P-900-02	
Specs	F6	
1. Item	Stud Bolt with 2 Heavy Hexagonal Nuts	
2. Bolt material	ASTM A320 GR L7	
3. Nuts material	HEX HEAVY ASTM A194 GR 7L	
4. Bolt thread type	½" - 1"	ASME B1.1, UNC 2A
	1 ½" - 3 ½"	ASME B1.1, UN 2A - 8 thd/in
5. Nut thread type	½" - 1"	ASME B1.1, UNC 2B
	1 ½" - 3 ½"	ASME B1.1, UN 2B - 8 thd/in
6. Coating	-	
7. Size Range	½" - 3 ½"	
8. Additional requirements	-	
9. Weight	-	
10. Dimension	-	

7. BOLT

2 X HEXAGONAL BOLT

Commodity Code	H-1500-01
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A193 B7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-1500-02
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A320 L7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-150-01
Specs	B4 B6 B7 B9 B10 B11 B14 B16 B17 B19 B22 B23 B26 B28 B30
1. Item	2 x Hex Bolt
2. Bolt material	A193 B7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	½" - 1 ½"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-150-02
Specs	B3 B12
1. Item	2 x Hex Bolt
2. Bolt material	A320 L7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	½" - 1 ½"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-2500-01
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A193 B7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-2500-02
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A320 L7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-300-01
Specs	c4 C6 C8 C10 C11 C16 C23 C28 C30
1. Item	2 x Hex Bolt
2. Bolt material	A193 B7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	½" - 1 ¾"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-300-02
Specs	C12 C3.
1. Item	2 x Hex Bolt
2. Bolt material	A320 L7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	½" - 1 ½"
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-600-01
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A193 B7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-600-02
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A320 L7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-600-06
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A193 B16
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-900-01
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A193 B7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	H-900-02
Specs	
1. Item	2 x Hex Bolt
2. Bolt material	A320 L7
3. Nuts material	-
4. Bolt thread type	B1.1
5. Nut thread type	B1.1
6. Coating	Zn-Ni
7. Size Range	-
8. Additional requirements	-
9. Weight	-
10. Dimension	-

Commodity Code	R8-1500-JP
Specs	
1. Blank type	Figure-8 Blank
2. Material	AS16 60 Epoxi Coated
3. Standard	ASME B16.48
4. Pressure class	1500
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-150-FI
Specs	
1. Blank type	Figure-8 Blank
2. Material	AS16 60 + Incone] Layer
3. Standard	ASME B16.48
4. Pressure class	150
5. Face type	Flat Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-150-FX
Specs	
1. Blank type	Figure-8 Blank
2. Material	A240 UNS32760
3. Standard	ASME B16.48
4. Pressure class	150
5. Face type	Flat Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" – 42"
9. Additional requirement	-

Commodity Code	R8-150-RL
Specs	B6 B19
1. Blank type	Figure-8 Blank
2. Material	A516 70 + S5
3. Standard	ASME B16.48
4. Pressure class	150
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 44"
9. Additional requirement	-

Commodity Code	R8-150-RX
Specs	B12
1. Blank type	Figure-8 Blank
2. Material	A240 UNS32760
3. Standard	ASME B16.48
4. Pressure class	150
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-2500-CS
Specs	H3
1. Blank type	Figure-8 Blank
2. Material	A240 316
3. Standard	ASME B16.48
4. Pressure class	2500
5. Face type	IX Ring Compact flange ISO 27509
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-300-FD
Specs	
1. Blank type	Figure-8 Blank
2. Material	A240 UNS31803
3. Standard	ASME B16.48
4. Pressure class	300
5. Face type	Flat Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-300-FX
Specs	
1. Blank type	Figure-8 Blank
2. Material	A240 UNS32760
3. Standard	ASME B16.48
4. Pressure class	300
5. Face type	Flat Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-300-RL
Specs	C6
1. Blank type	Figure-8 Blank
2. Material	AS16 70 + S5
3. Standard	ASME B16.48
4. Pressure class	300
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-600-JB
Specs	E34
1. Blank type	Figure-8 Blank
2. Material	ASTM A387 Gr 22
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 8"
9. Additional requirement	-

Commodity Code	R8-600-JL
Specs	
1. Blank type	Figure-8 Blank
2. Material	A516 70 + S5
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-600-RC
Specs	E8 E9 E10
1. Blank type	Figure-8 Blank
2. Material	AS16 60
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-600-RP
Specs	
1. Blank type	Figure-8 Blank
2. Material	AS16 60 Epoxi Coated
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	R8-900-JL
Specs	F6
1. Blank type	Figure-8 Blank
2. Material	A516 70 + S5
3. Standard	ASME B16.48
4. Pressure class	900
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-10000-AS
Specs	
1. Blank type	Paddle Blank
2. Material	A240 316
3. Standard	ASME B16.48
4. Pressure class	API 10000
5. Face type	Ring Joint API 6A
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" – 42"
9. Additional requirement	-

Commodity Code	RA-1500-JI
Specs	
1. Blank type	Paddle Blank
2. Material	A516 60 + Inconel Layer
3. Standard	ASME B16.48
4. Pressure class	1500
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-150-FD
Specs	
1. Blank type	Paddle Blank
2. Material	A240 UNS31803
3. Standard	ASME B16.48
4. Pressure class	150
5. Face type	Flat Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-150-FS
Specs	
1. Blank type	Paddle Blank
2. Material	A240 316
3. Standard	ASME B16.48
4. Pressure class	150
5. Face type	Flat Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-150-RI
Specs	B30
1. Blank type	Paddle Blank
2. Material	AS16 60 + Inconel Layer
3. Standard	ASME B16.48
4. Pressure class	150
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-150-RT
Specs	B7
1. Blank type	Paddle Blank
2. Material	AS16 60 Thermal Spray coated (note 126)
3. Standard	ASME B16.48
4. Pressure class	150
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 36"
9. Additional requirement	-

Commodity Code	RA-2500-CP
Specs	
1. Blank type	Paddle Blank
2. Material	A516 60 Epoxi Coated
3. Standard	ISO 27509
4. Pressure class	2500
5. Face type	IX Ring Compact flange ISO 27509
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	-
9. Additional requirement	-

Commodity Code	RA-300-FD
Specs	
1. Blank type	Paddle Blank
2. Material	A240 UNS31803
3. Standard	ASME B16.48
4. Pressure class	300
5. Face type	Flat Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-300-RC
Specs	C4 C10
1. Blank type	Paddle Blank
2. Material	A516 60
3. Standard	ASME B16.48
4. Pressure class	300
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-300-RP
Specs	C11 C23 C28
1. Blank type	Paddle Blank
2. Material	A516 60 Epoxi Coated
3. Standard	ASME B16.48
4. Pressure class	300
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-600-JC
Specs	E4
1. Blank type	Paddle Blank
2. Material	A516 60
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-600-JP
Specs	
1. Blank type	Paddle Blank
2. Material	AS16 60 Epoxi Coated
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-600-RD
Specs	E16
1. Blank type	Paddle Blank
2. Material	A240 UNS31803
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-600-RS
Specs	E3
1. Blank type	Paddle Blank
2. Material	A240 316
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RA-900-JP
Specs	
1. Blank type	Paddle Blank
2. Material	AS16 60 Epoxi Coated
3. Standard	ASME B16.48
4. Pressure class	900
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RE-300-RL
Specs	C6
1. Blank type	Paddle Spacer
2. Material	A516 70 + S5
3. Standard	ASME B16.48
4. Pressure class	300
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RE-600-JB
Specs	E34
1. Blank type	Paddle Spacer
2. Material	ASTM A387 Gr 22
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RE-600-JL
Specs	
1. Blank type	Paddle Spacer
2. Material	AS16 70 + S5
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RE-600-RC
Specs	E8 E9 E10
1. Blank type	Paddle Spacer
2. Material	A516 60
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RE-600-RP
Specs	
1. Blank type	Paddle Spacer
2. Material	AS16 60 Epoxi Coated
3. Standard	ASME B16.48
4. Pressure class	600
5. Face type	Raised Face ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RE-900-JL
Specs	F6
1. Blank type	Paddle Spacer
2. Material	AS16 70 + S5
3. Standard	ASME B16.48
4. Pressure class	900
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

Commodity Code	RE-900-JX
Specs	
1. Blank type	Paddle Spacer
2. Material	A240 UNS32760
3. Standard	ASME B16.48
4. Pressure class	900
5. Face type	Ring Type Joint ASME B16.5
6. Face finishing	-
7. Coating	-
8. Size Range (NPS)	½" - 42"
9. Additional requirement	-

ANNEX C

TYPICAL ARRANGEMENT FOR DRAIN, VENT
AND INSTRUMENTS

(Mandatory)



TECHNICAL SPECIFICATION

Nº: I-ET-3010.2Q-1200-200-P4X-001

REV. B

MARLIM LESTE E SUL

SHEET: 2 OF 12

TITLE:

PIPING SPECIFICATION FOR TOPSIDE

ESUP

INTERNAL

TABLE OF CONTENTS

C.1. SCOPE.....	3
C.2. TYPICAL ARRANGEMENT FOR TEMPERATURE WELLS	3
C.3. TYPICAL ARRANGEMENT FOR DRAINS AND VENTS.....	5
C.4. TYPICAL ARRANGEMENT FOR PRESSURE INSTRUMENTS.....	9
C.5. TYPICAL ARRANGEMENT FOR ORIFICE FLANGE	11
C.6. TYPICAL ARRANGEMENT FOR TUBING	12

C.1. SCOPE

This document establishes typical piping arrangements for installation of temperature wells, pressure instruments, orifice flanges, drains and vents. It is applicable for the Exploration and Production (E&P) business area, onshore and offshore, especially in oil and gas production and their process facilities.

C.2. TYPICAL ARRANGEMENT FOR TEMPERATURE WELLS

Thermowell assembly in change direction fittings may be use only when not prohibited by specific requirement defined by Instrumentation, Process or TBM team.

Table C.1- Typical arrangement for Thermowell (notes 3 and 4)

SPEC	Pipe Diameter	Type of Installation					
		Curved			Vertical/Horizontal		
		¾" NPT Threaded	1 ½" Flanged	2" Flanged	¾" NPT Threaded	1 ½" Flanged	2" Flanged
CLASS 125	¾" to 1 ½"	Type 1A			Type 1C		
	2"	Type 1B					
	3" to 4"	Type 1E			Type 1D		
CLASS 150 up to 600(note 1 and 2)	¾" to 1 ½"		Type 2A			Type 2C	
	2"		Type 2B				
	2 ½ and 3"		Type 2E				
	4" and above					Type 2D	
CLASS 900 up to 10000	¾" to 1 ½"			Type 2A			Type 2C
	2"			Type 2B			
	2 ½ and 3"			Type 2E			Type 2D
	4" and above						
Non-metallic piping	All		Not Applicable				

Notes:

- 1 – If pipe thickness for NPS 1 ½ is SCH XXS, it shall be used NPS 2 flanged connection.
- 2 – For piping specifications without NPS 1 ½, it shall be used NPS 2 flanged connection.
- 3 – The requirements of I-ET-3010.00-1200-800-P4X-013 – GENERAL CRITERIA FOR INSTRUMENTATION PROJECTS shall be also attended.
- 4 – The flange diameters shown on Table C.1 are typical diameters, but it must be confirmed in detailed design phase with the instrumentation team.

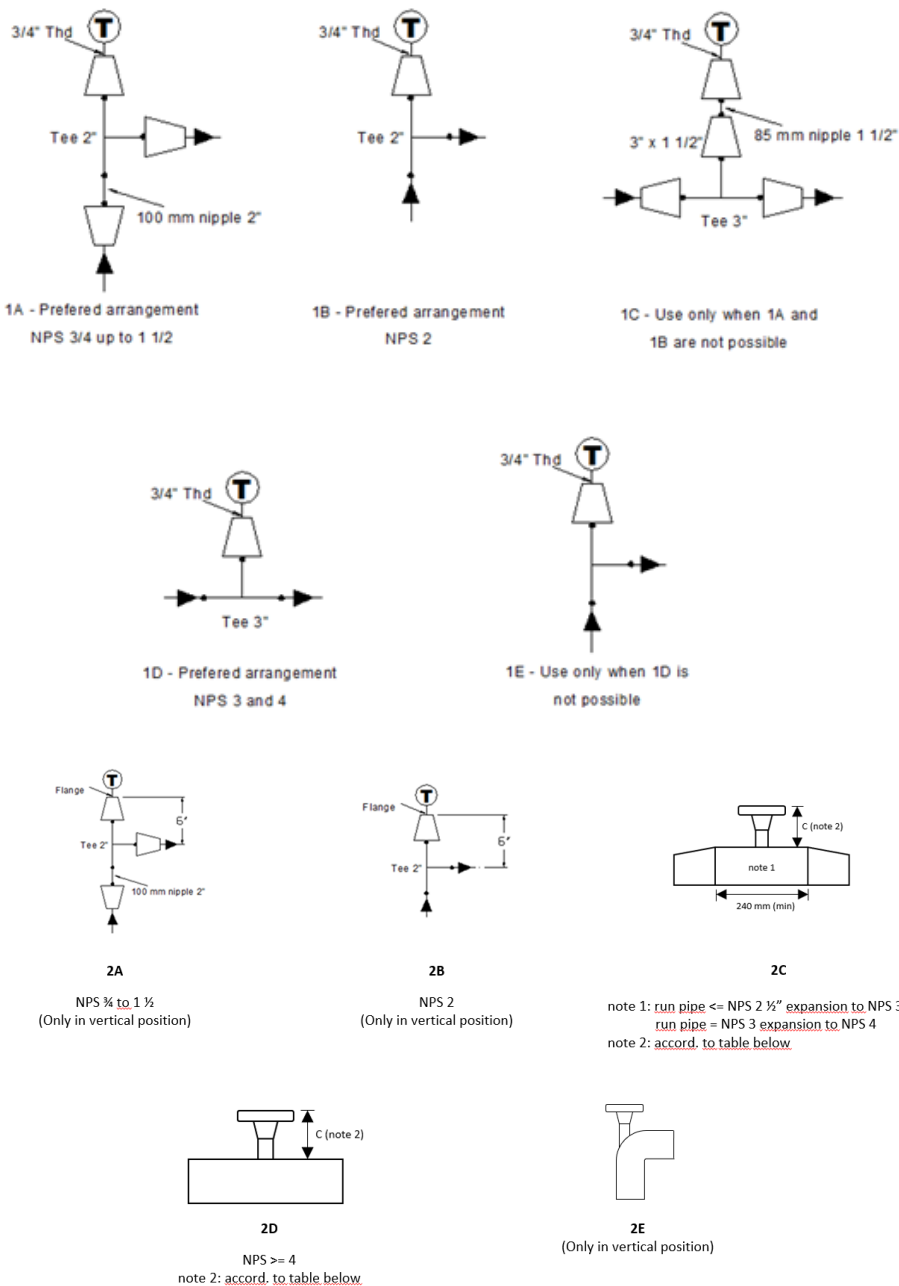


Figure C.1 - Typical arrangement for drains and vents.

Table C1.2 – Length (C parameter) for Temperature Well

	Pressure Class			
	150, 300 and 600	900 and 1500	2500	10000
C (mm)	150	165	190	150

C.3. TYPICAL ARRANGEMENT FOR DRAINS AND VENTS

C.3.1 Drain and vent size and pipe details shall be according to Table C.2.

C.3.2 For tubing, drain and vent size shall be $\frac{3}{4}$ " for piperun $\geq \frac{3}{4}$ " and it will be the same size of piperun for piping $< \frac{3}{4}$ ".

Table C.2 – Geometric requirements for Drain and Vents.

NPS of the main line.	Minimum Drain NPS (note 1 and 2)	Vent size (note 1)	Valve End (note 1 and 2)	
			CL 150 to CL 1500	CL 2500 and 10000 PSI
3/4 to 4	3/4	3/4	nipple with threaded cap (Error! Reference source not found. and C.5)	Flanged (Error! Reference source not found.B and C.2C)
6 to 10	1	1		
12 to 26	1 ½	2		
28 and above	2	3	Flanged (Error! Reference source not found.A)	Flanged (Error! Reference source not found.B and C.2C)

Note 1: For the Group 5 specs, organic coated specs (Group 11 and 14), class 2500 and 10000psi specs the minimum pipe size for drains and vents shall be NPS 2. For others pressure classes, vents pipe size shall be limited up to NPS 2. Valves shall be flanged type, selected according to the respectively piping spec (piping detail acc. Error! Reference source not found.).

Note 2: For CuNi specs (group 7) and galvanized carbon steel (group 8) specs, valves drain and vents shall be flanged type, selected according to the respectively piping spec (piping detail acc. Error! Reference source not found.).

C.3.3 Valves of drain and vent used only for hydrostatic pressure test shall be removed and replaced with blind flanges after the test (Figure C.1), this do not apply for tubing. Valves codification for hydrostatic test are listed below:

- Class 150# - VES-150-1-C100
- Class 300# - VES-300-1-C100
- Class 600# - VES-600-1-C100
- Class 900# - VES-900-1-C100
- Class 1500# - VES-1500-1-C100
- Class 2500# - VES-2500-1-C100

C.3.4 Threaded cap shall be tied to pipe to avoid losing the cap. It may be provided with chain or wire rope, handle, and swivel clamp. For illustration, see Figure C.5. The material selection shall mind the environment and dissimilar materials in contact. For class 10,000 the maximum diameter for NPT threads is NPS 1½ according to API 6A.

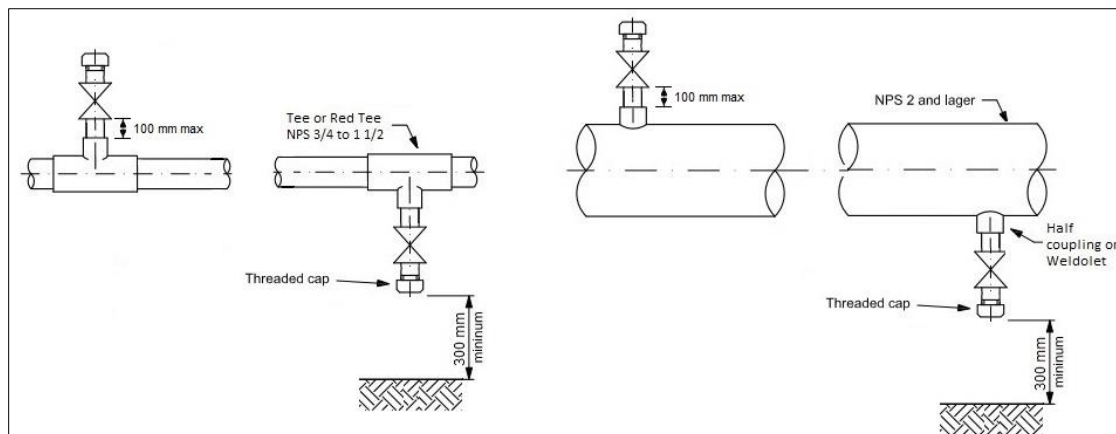


Figure C.1A - Drain and Vent single valve with threaded cap end for piping specs class 150, 300 and 600.

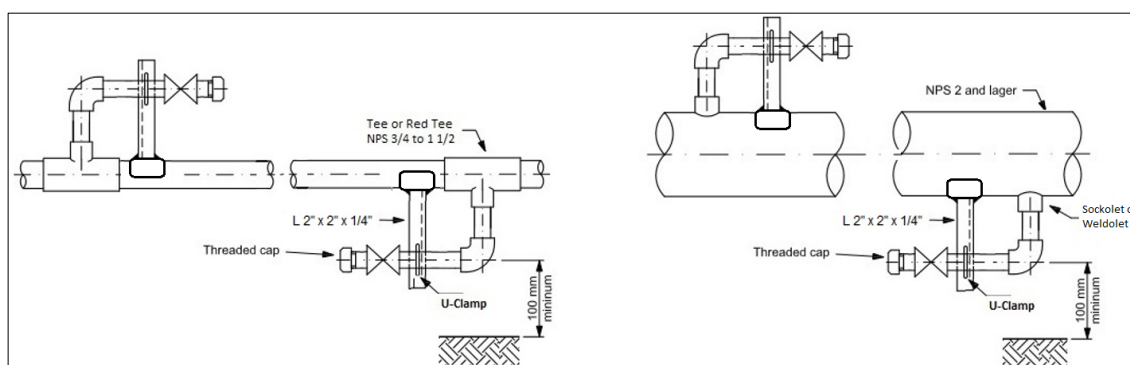


Figure C.1B - Vent single valve with threaded cap end for piping spec class 900 and 1500 (note 3).

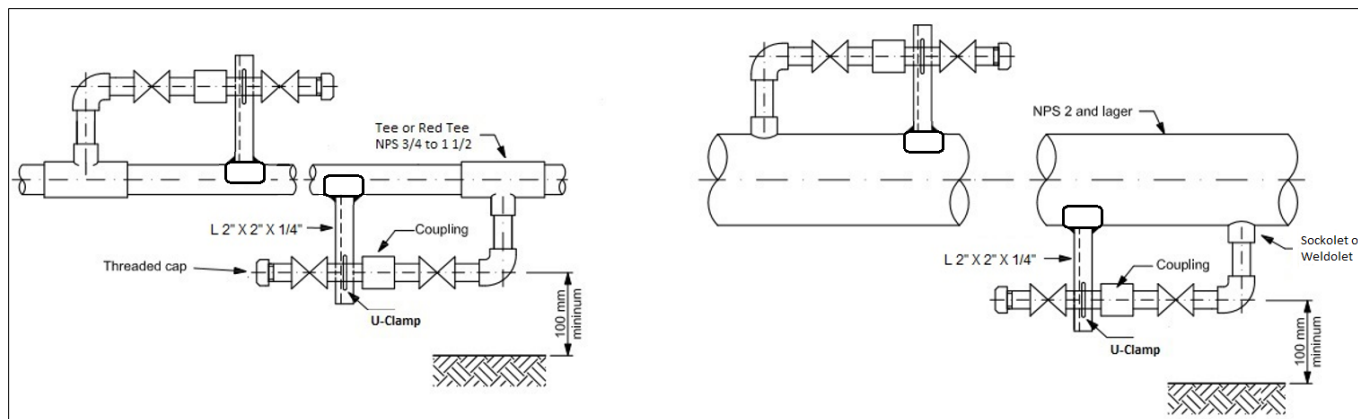


Figure C.1C - Drain and Vent two valves with threaded cap end.

Notes:

- 1 – Valve type shall be selected in piping specification.
- 2 – See Figure C.3 for U-clamp details.
- 3 – Figure C.1B may be used as alternative to Figure C.1A
- 4 – Shall be followed the requirements of I-ET-3000.00-1200-200-P4X-004 - Requirements for Piping Support - for piping subject to vibration and other cases mentioned there.

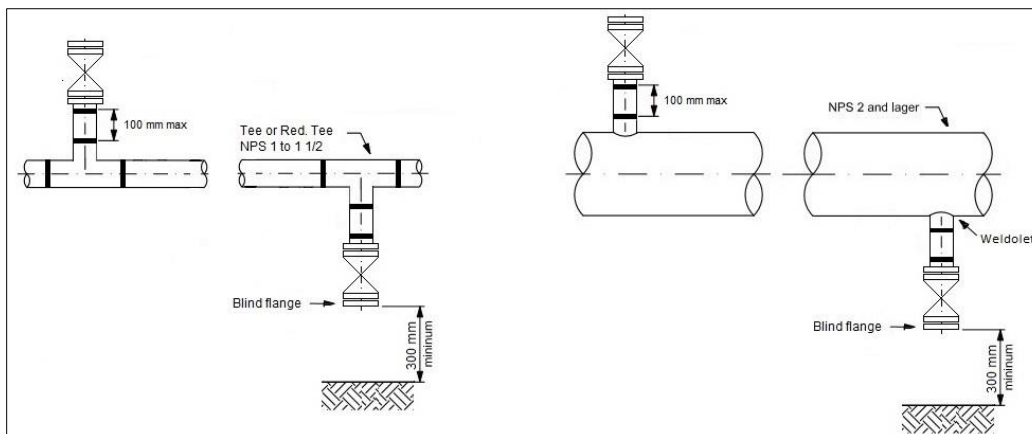


Figure C.2A - Drain and Vent single flanged valve with blind flange end for piping specs class 150, 300 and 600.

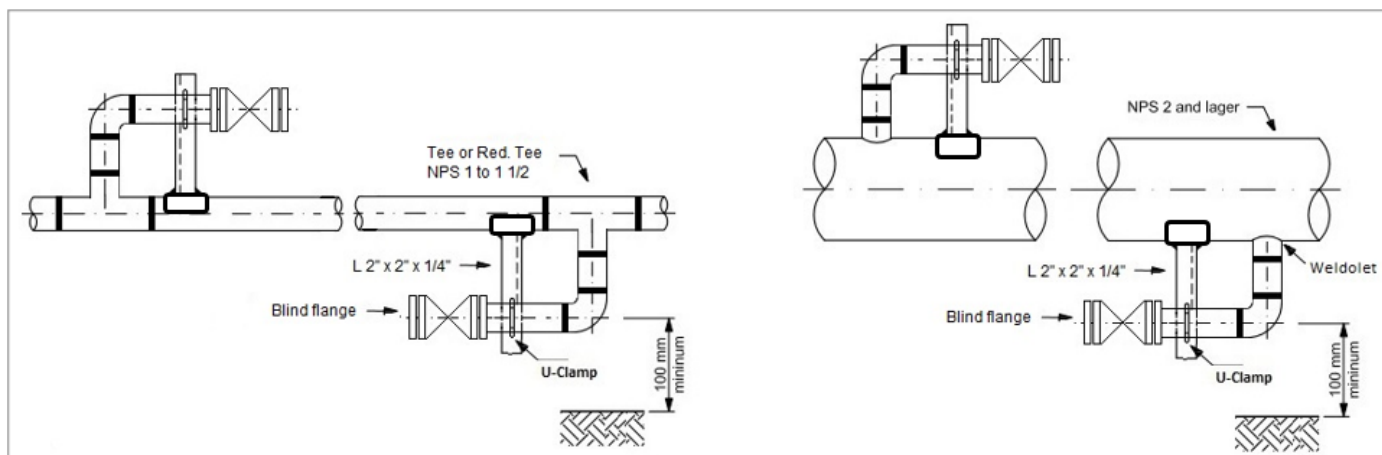


Figure C.2B - Drain and Vent single flanged valve with blind flange end for piping specs class 900 and higher. (note 3)

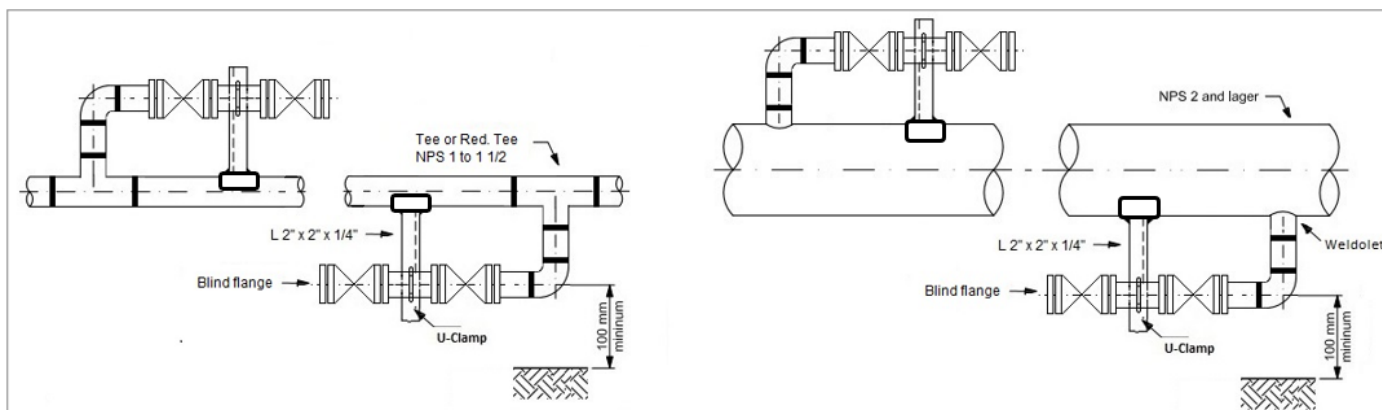


Figure C.2C - Drain and Vent two flanged valves with blind flange end.

Notes:

- 1 – Valve type shall be selected in piping specification.
- 2 – See Figure C.2 for U-clamp details.
- 3 – Figure C.2B may be used as alternative to Figure C.2A
- 4 – Shall be followed the requirements of I-ET-3000.00-1200-200-P4X-004 - Requirements for Piping Support - for piping subject to vibration and other cases mentioned there.

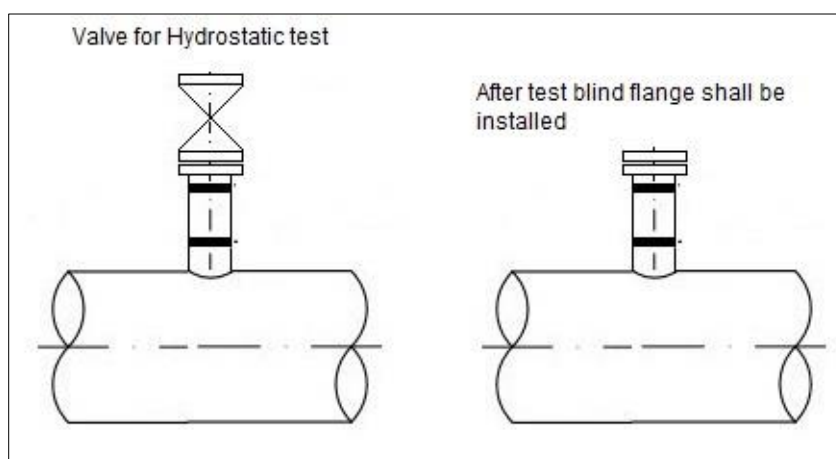


Figure C.1 – Drain and Vent for Hydrostatic Test

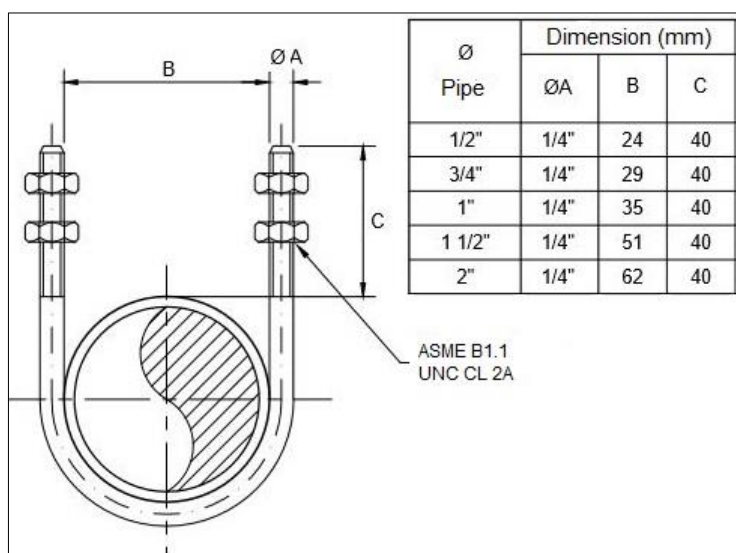


Figure C.2 – U clamp details.

Notes for Figure C.4:

1 – Material carbon steel coated with epoxy plastic powder.

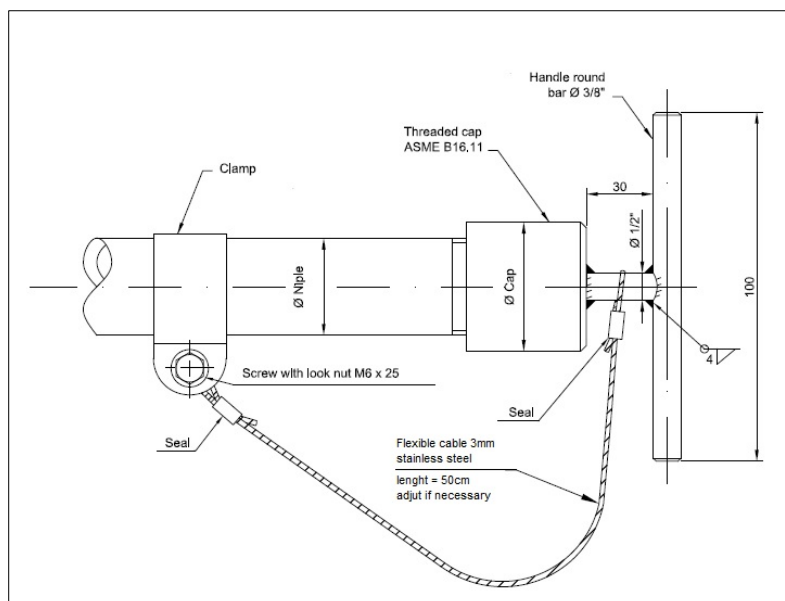


Figure C.5 – Threaded cap with cable (example).

C.4. TYPICAL ARRANGEMENT FOR PRESSURE INSTRUMENTS

C.4.1 Piping connection for pressure and differential pressure shall be according to Instrumentation, but connections for ,and based on, pressure and differential pressure are flanged with minimum size according to figures C.6, C.7 and C.8. C.4.2 When measurement utilizes chemical seal (diaphragm seal), either remote or integral, connection size shall follow DR-ENGP-M-I-1.5, considering 1 1/2" the minimum size. In case of specs with internal organic coating, the minimum diameter is 3" for instruments.

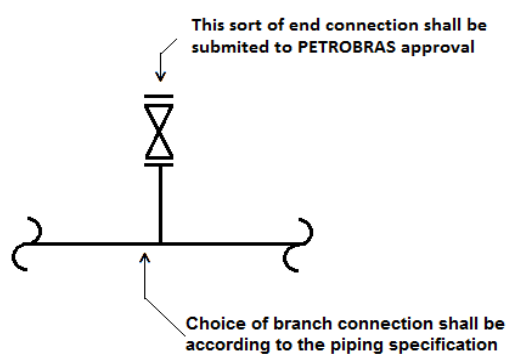
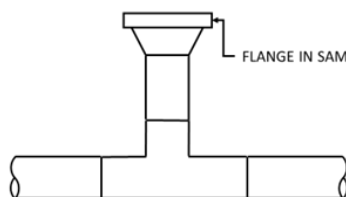
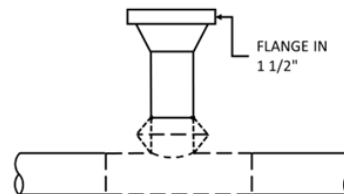


Figure C.6 – Typical instrumentation connection with piping valve included.

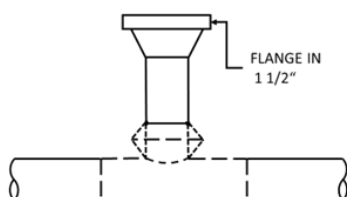
PRESSURE AND DIFFERENTIAL PRESSURE FOR TRANSMITTERS AND GAUGES, ALL WITHOUT DIAPHRAGM SEAL.



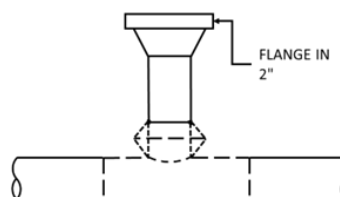
PIPE SIZE 3/4" AND 1"



LINE SIZE EQUAL TO 1 1/2"



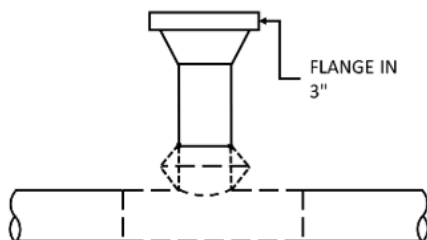
LINE SIZE EQUAL TO OR GREATER THAN 2"
AND PRESSURE CLASS UP TO 900#



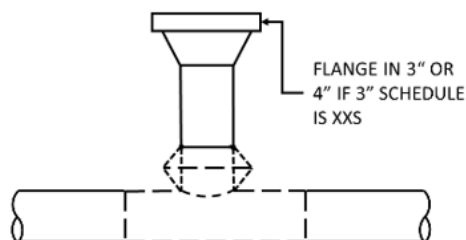
LINE SIZE EQUAL TO OR GREATER THAN 2"
AND PRESSURE CLASS EQUAL OR GREATER THAN 1500#

Figure C.7 – Details when diaphragm seal is not necessary (piping valve to be included acc to figure C.6)

- PRESSURE UP TO 3 BARG FOR TRANSMITTERS OR GAUGES
- DIFFERENTIAL PRESSURE FOR TRANSMITTERS OR GAUGES



LINE SIZE EQUAL TO 3" OR 3 1/2" AND 3" SCHEDULE IS NOT XXS



LINE SIZE EQUAL TO OR GREATER THAN 4"

Figure C.8 – Details for pressure up to 3 barg or differential pressure for transmitter and gauges (piping valve to be included acc to figure C.6)

C.5. TYPICAL ARRANGEMENT FOR ORIFICE FLANGE

C 5.1 Orifice Flanges shall be according to ASME B16.36.

C 5.2 All Valves used in orifice flanges shall be NPS ½, except for specs listed in Table C.3.

C 5.3 For organic coated specs (Group 11 and 14) and FRP specs (B22, B23, B26, B27, B28, C23 and C28) the use of orifice flanges is not allowed. In these lines, the flow tapes shall be installed with Stainless Steel AISI 316 spacer rings.

C 5.4 The scope of piping discipline includes all components up to the valve (Figure C.9).

C 5.5 Flange tap connection shall be welded. Threaded tap connection requires PETROBRAS´ approval.

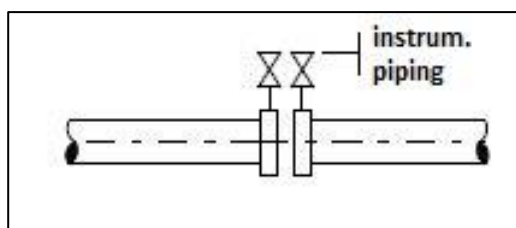


Figure C.9 – Scope definition

Table C.3- Connection diameter for orifice flanges/spacer rings

Valve NPS	Spec
¾	B5 C5 E5 F5 G5 B17
1	B11 C11 E11 F11 G11 H11 B14 C14 E14 F14 G14 H14 E17 B22 B23 B26 B27 B28 C23 C28 H3 H6 H10 H10P H11 H30 H30P J5 J12 J31 J31PJ40
2	H5

C.6. TYPICAL ARRANGEMENT FOR TUBING

C.6.1 Choice of branch shall be according to spec branch connections table.

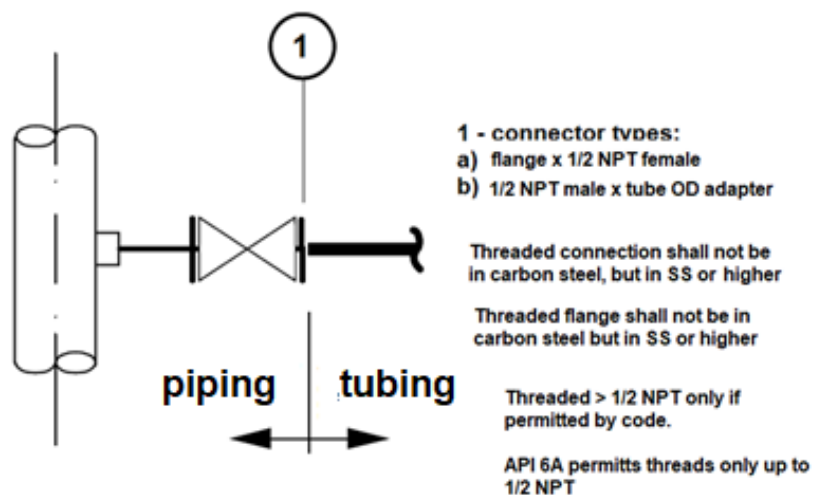


Figure C.10 – Installation detail for high pressure

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 1
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

ANNEX D

Cancelled

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 6
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL
ANNEX E FLANGE ISOLATION KITS (Mandatory)			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 2 OF 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
TABLE OF CONTENTS E.1. SCOPE..... 3 E.2. GENERAL DESCRIPTION..... 3 E.3. RECOMMENDED USE..... 3 E.4. ASSEMBLY..... 4 E.5. REQUIREMENTS..... 4 E.6. DESCRIPTION FOR COMMON TYPES OF ISOLATION KITS 5 E.7. MARKING..... 6			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 3 OF 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

E.1. SCOPE

E 1.1This document defines minimum technical requirements and conditions for purchasing flange electric isolation kits for Exploration and Production (E&P) business area, onshore and offshore, especially in oil and gas production and their process facilities.

The flange isolation kit contains gasket, bolt sleeves and washers.

E.2. GENERAL DESCRIPTION

E 2.1 The flange kit isolations shall be manufactured with isolating material having low water absorption, high compressive strength and high dielectric resistance.

E 2.2 Materials shall be applied considering the operating conditions as temperature, pressure and fluid service.

E 2.3 The flange isolation kit contains the following items:

Table E.1 – Isolation Kit items	
Isolation Gasket	1 pc
Isolation Sleeve	1 pc per flange bolt
Isolation Washers	2 pcs per flange bolt
Metallic Washers	2 pcs per flange bolt

E.3. RECOMMENDED USE

E 3.1 The use of flange isolation kit is recommended whenever two metals become an electrolyte with different electrode potentials.

E 3.2 Table E.2 gives cases where flange isolation kit shall be applied.

E 3.3 Flange isolation kit is not required for instruments connection.

E 3.4 The Contractor is responsible for indicating and applying the isolation kit wherever it is necessary.

E 3.5 Compressed sheet (fire tested) shall be applied instead of Table E.2 gaskets for B7 and B7H material specifications whenever the flange isolation kit and fired test components are required.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 4 OF 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Table E.2 – Flange Isolation kit recommendation

Service code	Service description	Pipe Specs	Material 1	Material 2									
				CuNi 90/10	Bronze	Carbon Steel	Stainless Steel	Duplex	Super Duplex	3 1/2 Ni	9 Ni	Inconel	Carbon Steel Inconel clad
FW	Fire Water (Aerated Seawater)	B7; B7R, B7H, S7	CuNi 90/10			Y				Y	Y		
HWU	Utility Heating Water	B4; F10	Carbon Steel	Y	Y		Y	Y	Y			Y	Y
IW	De-Aerated Seawater Injection	B10; C10; E10; F10; G10	Carbon Steel	Y	Y		Y	Y	Y			Y	Y
IW	De-Aerated Seawater Injection	C30; H30	Carbon Steel Inconel clad			Y				Y	Y		
PCW	Produced Water	B12; C12	SuperDuplex			Y				Y	Y		
SW	Seawater	B7R	CuNi			Y				Y	Y		

E.4. ASSEMBLY

E 4.1 In order to avoid damage during installation and tightening, the manufacturer installation guide shall be followed.

E 4.2 Before installation, the isolation kit shall be checked, and their surfaces must have no imperfection such as cracks and grooves.

E 4.3 Special attention shall be given to the correct position of metallic washers, as demonstrated in Figure E.1, due to washers and gasket thickness, it might be necessary bolts longer than those from the respective spec.

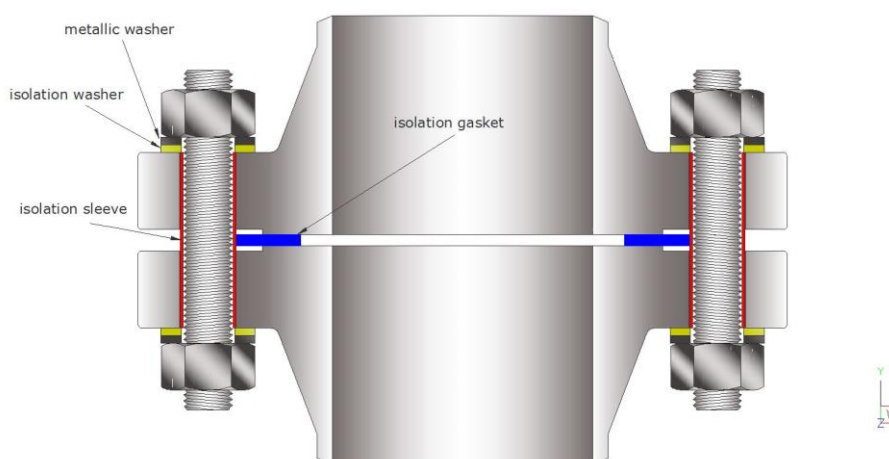


Figure E.1 – Example of RF flange kit isolation assembly.

E.5. REQUIREMENTS

E 5.1 The manufacturer shall present third party certificates issued by certified laboratories meeting the standards and reference values listed below:

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 5 OF 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Table E.2 – Minimum Requirements for isolation Kits

Property	Standard	Value
Dielectric Strength	ASTM D149 (short time)	500 Volts/mil
Insulation Resistance	ASTM D257	40000 Megohms
Compressive Strength	ASTM D695	25000 psi
Water absorption	ASTM D229	1.6% (maximum)

E.6. DESCRIPTION FOR COMMON TYPES OF ISOLATION KITS

E 6.1 Table E.3 contains examples for common specifications of isolation kits. The requirements listed in item E.5 shall be added to the purchase order.

Table E.3 – Examples for Isolation Kit specification (note 1 and note 2)

CLASS	TAG	Flange	Temperature Limits	Description
150 300	J-150-DY J-150-FY J-300-FY	150# FF 150# RF 300# RF	75°C	Phenolic gasket faced on both sides with Nitrile rubber; thickness 3,2 mm. G-10 isolating sleeves; two G-10 isolation washer and two hardened carbon steel washer Zn-Ni coated per bolt.
150 300	J-150-DA J-150-FA J-300-FA	150# FF 150# RF 300# RF	75°C	Isolation aramid fiber with Nitrile rubber gasket; thickness 3,2 mm. G-10 isolating sleeves; two G-10 isolation washer and two hardened carbon steel washer Zn-Ni coated per bolt.
150 300 600 900 1500 2500	J-150-FZ J-300-FZ J-600-FZ J-900-HZ J-1500-HZ J-2500-HZ	150# RF 300# RF 600# RF 900# RTJ 1500# RTJ 2500# RTJ	150°C	Metallic gasket, core in stainless steel 316 faced on both sides with insulation composite G-10, PTFE sealing ring. G-10 isolating sleeves; two G-10 isolation washer and two hardened carbon steel washer Zn-Ni coated per bolt.
150 300 600 900 1500 2500	J-150-FX J-300-FX J-600-FX J-900-HX J-1500-HX J-2500-HX	150# RF 300# RF 600# RF 900# RTJ 1500# RTJ 2500# RTJ	150°C	Metallic gasket, grooved core in stainless steel 316 faced on both sides with PTFE. G-10 isolating sleeves; two G-10 isolation washer and two hardened carbon steel washer Zn-Ni coated per bolt.

Note 1 – Alternative washer and sleeve material that may be applied in place of G10: Mylar and G11.

Note 2 - Other types of isolation kits are permitted. Table E.4 gives the minimum specifications to orientate purchase orders.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 6 OF 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Table E.4 – Form example with general specification for other types of isolation kits

General description		Flange electric isolation set: Isolation Gasket 1 pc Isolation Sleeve 1 pc per flange bolt Isolation Washers 2 pcs per flange bolt Metallic Washers 2 pcs per flange bolt
Flange standard		
Flange facing and class		
Operating condition	Temperature (°C)	
	Pressure (bar)	
	Fluid	
Additional requirements		See Annex E from DR-ENGP-I-1.1
Certificates		See Annex E from DR-ENGP-I-1.1
The manufacturer shall present installation guide, including torque values.		

E.7. MARKING

E 7.1 The following information shall be clearly stated on label attached to external surface of each isolation joint:

- Manufacturer's name or trademark;
- Nominal pipe size;
- Pressure class or Maximum operating pressure;
- Maximum operating temperature;
- Serial number.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 1
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

ANNEX F

Cancelled

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 1
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

ANNEX G

(Cancelled)

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 1
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

ANNEX H

(Cancelled)

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 1
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

ANNEX J

Cancelled

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 10
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL
ANNEX K PRESSURE-SAFETY VALVES (Mandatory)			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 2 OF 10
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
TABLE OF CONTENTS K.1. SCOPE..... K.2. NORMATIVE REFERENCES..... K.3. SYMBOLS AND ABBREVIATED TERMS..... K.4. VALVE SELECTION GUIDE..... K.5. GENERAL DESIGN REQUIREMENTS K.6. MARKING AND NAMEPLATE..... K.7. VALVE CODE RULE..... K.8. TRIM MATERIAL..... K.9. APPLICATION TABLE K.10. PSV VALVES DATASHEETS 3 3 3 3 4 4 5 6 6 10			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 3 OF 10
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

K.1. SCOPE

This document defines minimum technical requirements and conditions for purchasing pressure-safety valves (PSV) for Exploration and Production (E&P) business area, onshore and offshore, especially in oil and gas production and their process facilities.

K.2. NORMATIVE REFERENCES

API STD 520 - Sizing, Selection, and Installation of Pressure-relieving Devices Part I

API STD 520 - Sizing, Selection, and Installation of Pressure-relieving Devices in Refineries Part II

API STD 526 - Flanged Steel Pressure-relief Valves

API STD 527 - Seat Tightness of Pressure Relief Valves

K.3. SYMBOLS AND ABBREVIATED TERMS

For the purposes of this annex, the following symbols and abbreviated terms are applicable:

P&ID	Process and instrumentation diagram
PSV	Pressure Safety Valve / Pressure Relief Valve
VDS	Valve Datasheet
VSL	Valve Specification Level
SPEC	Piping material specification

K.4. VALVE SELECTION GUIDE

K.4.1 This item presents general information, such as a guide of how shall be conducted the engineering process to select a valve for use in the Project and/or specific application.

K.4.2 The indication of all valves shall be driven by the definition of Valve Specification Level (VSL), which regulates the specification of an adequate valve for a certain application, considering the criticality foreseen in the application/use of the valve.

K.4.3 The VSL classification will provide two levels of specification: VSL-1 and VSL- 2. These two VSLs designations define different levels of technical requirements. For VSL-1, the leakage acceptance criteria is in accordance with API 527. For VSL-2, the leakage acceptance criteria shall be half of those presented in API 527.

K.4.4 The determination of the VSL is obtained by the classification rules stated on Table K.1 and Table K.2.

K.4.5 The manufacturer of the valve shall attend all requirements listed in the VDS, including the specific requirements of VSL.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 4 OF 10
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP INTERNAL

Table K.1 – Definition of accumulated energy and high demand

Accumulated Energy	High	Valves of Pressure Class 600 and 900, NPS ≥ 6 Valves of Pressure Class 1500, 2500 and 10.000psi
	Low	Valves of Pressure Class 125, 150 and 300 Valves of Pressure Class 600 and 900, NPS ≤ 4

Table K.2 – Valve Specification Level (VSL) classification

Other valves	Service	Accumulated Energy	VSL
	Hydrocarbon Hot water Inflammable Steam Toxic	High	VSL-2
		Low	VSL-2
	Other services	High	VSL-2
		Low	VSL-1

K.5. GENERAL DESIGN REQUIREMENTS

K.5.1 Orifice calculations shall be done according to API STD 520.

K.5.2 PSV design shall be according the standards referenced in the VDS. In case of conflict between the requirements herein stablished and that standard, the attendance of this document shall be considered as mandatory.

K.5.3 The manufacturer shall present all dimensional drawings of the PSV, with a list of all parts and materials specifications.

K.5.4 All metallic materials shall have a mill certification, with registers of chemical composition, mechanical properties and other standards requirements, besides the manufacturer batch identification.

K.6. MARKING AND NAMEPLATE

K.6.1 All valves shall be marked in accordance with the requirements stated on the design standard referenced in the VDS.

K.6.2 Each valve shall be provided with an austenitic stainless steel nameplate securely affixed and so located that it is easily accessible.

K.6.3 The nameplate shall present information in accordance with the requirements stated on the design standard referenced in the respectively VDS, additional data shall be included:

- Indication about the VSL of the valve: VSL-1 or VSL-2.
- PSV tag informed in P&ID.

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 5 OF 10
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

K.7. VALVE CODE RULE

K.7.1 All PSVs specified for application in Exploration and Production (E&P) oil production and process facilities have a unique code, in order to have uniformity and to systematize the coding of PSVs so that they can be handled in an organized manner and information can be easily retrieved.

K.7.2 The complete structure of all PSV codes shall be as follows:

PSV-XY-Z-MMAB

Where:

X – Upstream flange class, in accordance with table K.3;

Y – Downstream flange class, in accordance with table K.3;

Z – Valve Specification Level (VSL), in accordance with table K.2;

MM – PSV Body Material Class, according to Table K.4;

A – Valve Type (0 = Conventional; 1 = Balanced with trim A; 2 = Balanced with trim B);

B – Orifice designation, as per API 526.

Table K.3 – Code for flange class

Pressure Class	150	300	600	900	1500	2500	10000
Code X and Y	B	C	E	F	G	H	J

Table K.4 – Body Material class according to material type and number

Material number	Material type			
	C	D	N	S
	Carbon steel	Duplex steel	Nickel alloys	Stainless steel
1	ASTM A216 WCB	-	Inconel 625 (UNS N06625)	-
2	ASTM A352 LCB	ASTM A995 Gr. 4A	-	ASTM A351 Gr. CF8M
3	-	ASTM A995 Gr 6A	-	-
8	ASTM A216 WCB + PTFE / PFA			

Example: PSV-GC-2-S21K

Upstream flange class (G): 1500

Downstream flange class (C): 300

VSL: 2

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 6 OF 10
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP INTERNAL	

PSV Body Material Class (S2):

ASTM A351 CF8M

Valve Type (1):

balanced with trim A

Orifice designation:

K (effective area = 1.838 in²)

K.8. TRIM MATERIAL

K.8.1 Materials for internal parts (trim) are described in VDSs (item K.10). The criterion for their selection is in accordance with Table K.5.

Table K.5 – Trim material configuration for PSVs								
Material Class	Body Material	Bonnet material	Disc Material	Nozzle Material	Guide	Stem (spindle)	Spring	Bellows
C1	ASTM A216 Gr WCB	ASTM A216 Gr WCB	Martensitic SS 400 Series	AISI 316	AISI 316	Martensitic SS 400 Series	UNS N07750	UNS N06625
C2	ASTM A352 Gr LCB	ASTM A352 Gr LCB	AISI 316 + Stellite	AISI 316	AISI 316	AISI 316		PTFE / PFA
C8	ASTM A216 WCB + PTFE / PFA	ASTM A216 WCB + PTFE / PTFE	PTFE / PFA	PTFE / PFA	AISI 316	UNS N06455		UNS N06625
D2	ASTM A995 4A	ASTM A995 4A	ASTM A479 (UNS S31803)	ASTM A479 (UNS S31803)	UNS S31803	UNS S31803		
D3	ASTM A995 6A	ASTM A995 6A	ASTM A479 (UNS S32760)	ASTM A479 (UNS S32760)	UNS S32760	UNS S32760		
N1	UNS N06625	UNS N06625	UNS N06625	UNS N06625	UNS N06625	UNS N06625		
S2	ASTM 351 CF8M	ASTM A351 CF8M	AISI 316 + Stellite	AISI 316	AISI 316	AISI 316		
D3 Type 2 (trim B)	ASTM A995 6A	ASTM A995 6A	Hastelloy C	Hastelloy C	UNS S32760	UNS S32760		

Note 1: Sliding elements and threaded components shall have a hardness and surface finish to avoid galling.

K.9. APPLICATION TABLE

K.9.1 Table K.6, below presents all possible valve codes and their respective applicable specs. All possible orifices for each valve code are applicable, as presented in third column of the Table K.6.

	TECHNICAL SPECIFICATION		Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL			SHEET: 7 OF 10
	TITLE: PIPING SPECIFICATION FOR TOPSIDE			ESUP
				INTERNAL
Table K.6 – Applicable specs per valve code				
VALVE DATASHEET	SPEC	ORIFICES		
PSV-BB-1-C10	B4 B5 B9 B10 B17 B10H	D, E, F, G, H, J, K, L, M, N, P, Q, R, T		
PSV-BB-2-C10				
PSV-BB-1-C11				
PSV-BB-2-C11				
PSV-BB-2-C81	B27	D, E, F, G, H, J, K, L, M, N, P, Q, R, T		
PSV-CB-1-C10	C4 C5 C9 C10 C10P C10H	D, E, F, G, H, J, K, L, M, N, P, Q, R, T		
PSV-CB-2-C10				
PSV-CB-1-C11				
PSV-CB-2-C11				
PSV-EB-1-C10	E4 E5 E9 E10 E10R E17	D, E, F, G, H, J, K, L, M, N, P, Q, R, T		
PSV-EB-2-C10				
PSV-EB-1-C11				
PSV-EB-2-C11				
PSV-FB-1-C10	F4 F5 F10 F10R	H, J, K, L, M, N, P		
PSV-FB-2-C10				
PSV-FB-1-C11				
PSV-FB-2-C11				
PSV-FC-1-C10		D, E, F, G,		
PSV-FC-2-C10				
PSV-FC-1-C11				
PSV-FC-2-C11				
PSV-GB-2-C10	G4 G5 G10 G10P G10R	L		
PSV-GB-2-C11				
PSV-GC-2-C10		D, E, F, G, H, J, K		
PSV-GC-2-C11				
PSV-HC-2-C10	H5 H10 H10P	D, E, F, G		
PSV-HC-2-C11				
PSV-BB-1-C20	B6 B9 B10 B17 B19 B10H	D, E, F, G, H, J, K, L, M, N, P, Q, R, T		
PSV-BB-2-C20				
PSV-BB-1-C21				
PSV-BB-2-C21				
PSV-CB-1-C20	C6 C9 C10 C10P C10H	D, E, F, G, H, J, K, L, M, N, P, Q, R, T		
PSV-CB-2-C20				
PSV-CB-1-C21				
PSV-CB-2-C21				

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 8 OF 10
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

Table K.6 – Applicable specs per valve code (continued)

VALVE DATASHEET	SPECS	ORIFICES
PSV-EB-1-C20	E6 E9 E10	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-EB-2-C20		
PSV-EB-1-C21		
PSV-EB-2-C21		
PSV-FB-1-C20	F6 F10 F10P	H, J, K, L, M, N, P
PSV-FB-2-C20		
PSV-FB-1-C21		
PSV-FB-2-C21		
PSV-FC-1-C20		D, E, F, G
PSV-FC-2-C20		
PSV-FC-1-C21		
PSV-FC-2-C21		
PSV-GB-2-C20	G6 G10 G10P G19	L
PSV-GB-2-C21		D, E, F, G, H, J, K
PSV-GC-2-C20		
PSV-GC-2-C21		
PSV-HC-2-C20	H6 H10 H10P	D, E, F, G
PSV-HC-2-C21		
PSV-BB-1-N11	B30	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-BB-2-N11		
PSV-CB-1-N11	C30	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-CB-2-N11		
PSV-EB-1-N11	E30	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-EB-2-N11		
PSV-FB-1-N11	F30	H, J, K, L, M, N, P
PSV-FB-2-N11		
PSV-FC-1-N11		D, E, F, G
PSV-FC-2-N11		
PSV-HC-2-N11	H30	D, E, F, G
PSV-BB-1-D21	B16 B16H	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-BB-2-D21		
PSV-CB-1-D21	C16	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-CB-2-D21		
PSV-EB-1-D21	E16	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-EB-2-D21		
PSV-FB-1-D21	F16	H, J, K, L, M, N, P
PSV-FB-2-D21		
PSV-FC-1-D21		D, E, F, G
PSV-FC-2-D21		

Table K.6 – Applicable specs per valve code (continued)

VALVE DATASHEET	SPEC	ORIFICES
PSV-GB-2-D21	G16 G16P	L
PSV-GC-2-D21		D, E, F, G, H, J, K
PSV-HC-2-D21	H16 H16H	D, E, F, G
PSV-BB-1-D31	B12	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-BB-2-D31		
PSV-CB-1-D31	C12	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-CB-2-D31		
PSV-GB-2-D31	G12 G12P	L
PSV-GC-2-D31		D, E, F, G, H, J, K
PSV-HC-2-D31	H12 H12P	D, E, F, G
PSV-BB-1-S21	B3 B6 B9 B10 B17 B19 B10H	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-BB-2-S21		
PSV-CB-1-S21	C3 C6 C9 C10 C10P C10H	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-CB-2-S21		
PSV-EB-1-S21	E3 E6 E9 E10	D, E, F, G, H, J, K, L, M, N, P, Q, R, T
PSV-EB-2-S21		
PSV-FB-1-S21	F3 F6 F10 F10P	H, J, K, L, M, N, P
PSV-FB-2-S21		
PSV-FC-1-S21		D, E, F, G
PSV-FC-2-S21		
PSV-GB-2-S21	G3 G6 G10 G10P G19	L
PSV-GC-2-S21		D, E, F, G, H, J, K
PSV-HC-2-S21	H3 H6 H10 H10P	D, E, F, G
PSV-BB-1-D32	B7 B7H B14 B14H B18H, B23, B23H	D, E, F, G, H, J, K, L, M, N, P, Q, R, T

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 10 OF 10
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
K.10. PSV VALVES DATASHEETS			

Valve Code	PSV-BB-1-C11F
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C10T
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C11D
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C11E
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C10T
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C11D
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C11E
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C11N
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice N (4.34 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C11T
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C20G
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C20L
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C20Q
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C20T
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C21G
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	Austen A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C21L
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C21Q
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	A15M A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D21E
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C21H
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C21R
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 GR LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D21F
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and Bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C21J
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-C21T
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	A15M A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D21L
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D21Q
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D31E
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D31J
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D31N
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice N (4.34 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D31T
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D32G
Specs	B14
1. Valve Type	Balanced with nobble Trim
2. orifice Size	Orifice G (0.503 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/outlet pressure class	150 x 150
8. Temperature	0°C to 70°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	Hastelloy C
12. Nozzle Material	Hastelloy C
13. Guide Material	SuperDuplex UNS S32760
14. spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D32L
Specs	B14
1. Valve Type	Balanced with nobble Trim
2. orifice Size	Orifice L (2.853 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/outlet pressure class	150 x 150
8. Temperature	0°C to 70°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	Hastelloy C
12. Nozzle Material	Hastelloy C
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-D32Q
Specs	B14
1. Valve Type	Balanced with nobble Trim
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 70°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	Hastelloy C
12. Nozzle Material	Hastelloy C
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-N11E
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-N11J
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-N11N
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-N11T
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-S21G
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-S21L
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-S21N
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-S21Q
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-1-S21T
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C10E
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice E (0.196 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527

Valve Code	PSV-BB-2-C10G
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C10J
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C10L
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C10N
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C10Q
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C10T
Specs	B4 B9 B10 B17
1. Valve Type	Conventional
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C11E
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C11G
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C11J
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C11L
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C11N
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C11Q
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C11T
Specs	B4 B9 B10 B17
1. Valve Type	Balanced
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C20E
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice E (0.196 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C20G
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C20J
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice J (1.287 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C20L
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C20N
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C20Q
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C20T
Specs	B6 B9 B10 B17 B19
1. Valve Type	Conventional
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C21E
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C21G
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C21J
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C21L
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C21N
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C21Q
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice Q (11.05 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-C21T
Specs	B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D21D
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D21F
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D21H
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D21K
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D21M
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D21P
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D21R
Specs	B16
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D31D
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D31F
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D31H
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D31K
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and Bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D31M
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D31P
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and Bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-D31R
Specs	B12
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-N11D
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-N11F
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-N11H
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-N11K
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-N11M
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and Bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-N11P
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-N11R
Specs	B30
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-S21D
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-S21F
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-S21H
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-S21K
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-S21M
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-S21P
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-BB-2-S21R
Specs	B3 B6 B9 B10 B17 B19
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 8"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	150 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C10D
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Uclw Testing	API 527

Valve Code	PSV-CB-1-C10F
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C10H
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C10K
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice K (1.838 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C10M
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice M (3.60 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C10P
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C10R
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C11D
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527

Valve Code	PSV-CB-1-C11F
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C11H
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C11K
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTM A316
13. Guide Material	ASTM A316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C11P
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C20D
Specs	C6 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C20H
Specs	C6 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 GR LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C20M
Specs	C6 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 GR LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C20R
Specs	C6 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C21D
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C21H
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C21M
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C21R
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	A15M A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-D21F
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C21F
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C21K
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-C21P
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-D21D
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-D21H
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-D21M
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-D21R
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-D31F
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527

Valve Code	PSV-CB-1-D31K
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527

Valve Code	PSV-CB-1-D31P
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527

Valve Code	PSV-CB-1-N11D
Specs	C30
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-N11H
Specs	C30
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-N11M
Specs	C30
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-N11R
Specs	C30
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-S21F
Specs	C10 C3.
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-S21K
Specs	C10 C3.
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-1-S21P
Specs	C10 C3.
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C10D
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C10H
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C10M
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C10P
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C10R
Specs	C4 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice R (16.00 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C11D
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C11F
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C11H
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C11K
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C11M
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C11P
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C11R
Specs	C4 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C20D
Specs	C6 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C20H
Specs	C6 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C20M
Specs	C6 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice M (3.60 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C20R
Specs	C6 C10
1. Valve Type	Conventional
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C21F
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C21K
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-C21P
Specs	C6 C10
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D21D
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D21H
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D21M
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D21R
Specs	C16
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D31D
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D31H
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D31M
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D31R
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-N11F
Specs	C30
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D31J
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D31T
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice T (26.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	8" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-D31K
Specs	C12
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-N11D
Specs	C30
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Page 22 of 40

Valve Code	PSV-CB-2-N11M
Specs	C30
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-N11R
Specs	C30
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Disc	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-S21F
Specs	C10 C3.
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-S21K
Specs	C10 C3.
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-S21P
Specs	C10 C3.
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-CB-2-S21R
Specs	C10 C3.
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	300 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C10D
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C10F
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C10H
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C10K
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C10M
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C10P
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C10R
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C11D
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C11F
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C11K
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C11P
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C20D
Specs	E6 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C20H
Specs	E6 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C20M
Specs	E6 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 GR LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C20R
Specs	E6 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C21F
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C21K
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-C21P
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-D21D
Specs	E16
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-D21H
Specs	E16
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-D21M
Specs	E16
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-D21R
Specs	E16
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-N11F
Specs	E30
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-N11K
Specs	E30
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-N11P
Specs	E30
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-S21D
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-S21H
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-S21M
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-1-S21R
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C10D
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C10F
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice F (0.307 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C10H
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C10K
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C10M
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C10P
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C10R
Specs	E4 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C11D
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C11F
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	NOT Applicable

Valve Code	PSV-EB-2-C11H
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	NOT Applicable

Valve Code	PSV-EB-2-C11M
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C11R
Specs	E4 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C20F
Specs	E6 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C20K
Specs	E6 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C20P
Specs	E6 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 GR LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C20R
Specs	E6 E9 E10 E34
1. Valve Type	Conventional
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C21D
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C21F
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	A15M A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C21H
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C21K
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	A158 A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C21M
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C21P
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	A15M A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-C21R
Specs	E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	A352 ASTM 352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-D21D
Specs	E16
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-D21F
Specs	E16
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and Bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-D21K
Specs	E16
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-D21P
Specs	E16
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 GR 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-N11D
Specs	E30
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-N11H
Specs	E30
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-N11M
Specs	E30
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-N11P
Specs	E30
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-N11R
Specs	E30
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-S21D
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-S21F
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-S21H
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-S21K
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-S21M
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-S21P
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-EB-2-S21R
Specs	E3 E6 E9 E10 E34
1. Valve Type	Balanced
2. Orifice Size	Orifice R (16.00 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	6" x 10"
6. Inlet/Outlet end connection	ASME B16.5, RF x ASME B16.5, RF
7. Inlet/Outlet pressure class	600 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-C20H
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-C20K
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-C20M
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-C20P
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-C21J
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-C21L
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-C21N
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-S21H
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-S21K
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-S21M
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-1-S21P
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-C20J
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-C20L
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-C20N
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-C21H
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-C21K
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-C21M
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice M (3.60 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-C21P
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice P (6.38 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-S21J
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-S21L
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FB-2-S21N
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice N (4.34 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 150
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-1-C20D
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-1-C21D
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-1-S21D
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-2-C20D
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-2-C21D
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-1-C20F
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-1-C21F
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-1-S21F
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-1
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-2-C20F
Specs	F6
1. Valve Type	Conventional
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-2-C21F
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-FC-2-S21D
Specs	F6
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	900 x 300
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GB-2-C10L
Specs	G10
1. Valve Type	Conventional
2. Orifice Size	Orifice L (2.853 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GB-2-D21L
Specs	G16P G16
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 150
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C10F
Specs	G10
1. Valve Type	Conventional
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C10K
Specs	G10
1. Valve Type	Conventional
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GB-2-C11L
Specs	G10
1. Valve Type	Balanced
2. Orifice Size	Orifice L (2.853 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 150
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C10G
Specs	G10
1. Valve Type	Conventional
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C11D
Specs	G10
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GB-2-C20L
Specs	G10
1. Valve Type	Conventional
2. Orifice Size	Orifice L (2.853 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	4" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 150
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C10H
Specs	G10
1. Valve Type	Conventional
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	ASTI 316
13. Guide Material	ASTI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C11E
Specs	G10
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C11J
Specs	G10
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	0°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A216 Gr WCB
11. Disc Material	Martensitic SS 400 Series
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	Martensitic SS 400 Series
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C20F
Specs	G10
1. Valve Type	Conventional
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C20K
Specs	G10
1. Valve Type	Conventional
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	Not applicable
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-C21G
Specs	G10
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-46°C to 240°C
9. Material Class	Carbon Steel
10. Body and bonnet Material	ASTM A352 Gr LCB
11. Disc Material	AISI 316 x Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-D21D
Specs	G16P G16
1. Valve Type	Balanced
2. Orifice Size	Orifice D (A=0.110 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-D21H
Specs	G16P G16
1. Valve Type	Balanced
2. Orifice Size	Orifice H (0.785 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-D31E
Specs	G12
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 2"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-D31J
Specs	G12
1. Valve Type	Balanced
2. Orifice Size	Orifice J (1.287 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 4"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-S21F
Specs	G3 G10
1. Valve Type	Balanced
2. Orifice Size	Orifice F (0.307 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-GC-2-S21K
Specs	G3 G10
1. Valve Type	Balanced
2. Orifice Size	Orifice K (1.838 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	3" x 6"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	1500 x 300
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-HC-2-D21E
Specs	H16
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	2500 x 300
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-HC-2-D21G
Specs	H16
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	2500 x 300
8. Temperature	-50°C to 100°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 4A
11. Disc Material	ASTM A479 (UNS S31803)
12. Nozzle Material	ASTM A479 (UNS S31803)
13. Guide Material	Duplex UNS S31803
14. Spindle Material	Duplex UNS S31803
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-HC-2-D31E
Specs	H12P
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	2500 x 300
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-HC-2-D31G
Specs	H12P
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	2500 x 300
8. Temperature	-50°C to 110°C
9. Material Class	Duplex Steel
10. Body and bonnet Material	ASTM A995 Gr 6A
11. Disc Material	ASTM A479 (UNS S32760)
12. Nozzle Material	ASTM A479 (UNS S32760)
13. Guide Material	SuperDuplex UNS S32760
14. Spindle Material	SuperDuplex UNS S32760
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-HC-2-N11E
Specs	H30
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 1/2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	2500 x 300
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-HC-2-N11G
Specs	H30
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in ²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	2500 x 300
8. Temperature	-100°C to 155°C
9. Material Class	Nickel Alloys
10. Body and bonnet Material	UNS N06625
11. Disc Material	UNS N06625
12. Nozzle Material	ASTM B564 (UNS N06625)
13. Guide Material	Inconel UNS N06625
14. Spindle Material	Inconel UNS N06625
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-HC-2-S21E
Specs	H3
1. Valve Type	Balanced
2. Orifice Size	Orifice E (0.196 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	1 ½" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	2500 x 300
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

Valve Code	PSV-HC-2-S21G
Specs	H3
1. Valve Type	Balanced
2. Orifice Size	Orifice G (0.503 in²)
3. Valve Specification Level (VSL)	VSL-2
4. Standard	API 520
5. Inlet/Outlet Size Range (NPS)	2" x 3"
6. Inlet/Outlet end connection	ASME B16.5, RTJ x ASME B16.5, RF
7. Inlet/Outlet pressure class	2500 x 300
8. Temperature	-100°C to 260°C
9. Material Class	Stainless Steel
10. Body and bonnet Material	ASTM A351 Gr CF8M
11. Disc Material	AISI 316 + Stellite
12. Nozzle Material	AISI 316
13. Guide Material	AISI 316
14. Spindle Material	SS AISI 316
15. Spring Material	UNS N07750
16. Bellow Material	UNS N06625
17. Valve Testing	API 527
18. Notes	Not Applicable

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 OF 4
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL
ANNEX L REQUIREMENTS FOR LINE BLANKS (MANDATORY)			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 2 OF 4
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
TABLE OF CONTENTS L.1. SCOPE..... 3 L.2. NORMATIVE REFERENCES..... 3 L.3. SYMBOLS AND ABBREVIATED TERMS 3 L.4. GENERAL REQUIREMENTS..... 3 L.5. MATERIALS 4 L.6. DIMENSIONS..... 4 L.7. MARKING..... 4			

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 3 OF 4
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

L.1. SCOPE

This ANNEX specifies requirements for line blanks (figure-8, paddles, and paddle spacers) to attend API 6A class 10000 flanges concerning the following topics: design, material, dimensions, inspection, marking, and documentations.

L.2. NORMATIVE REFERENCES

Note: The Standards referred herein shall be considered in their latest edition/revision.

ASME B 16.5, *Pipe flanges and flanged fittings*
ASME B 16.47, *Large Diameter Steel Flanges NPS 26 Through NPS 60 Metric/Inch Standard*
ASME B 16.48, *Line Blanks*
ASME B 31.3, *Process piping*
API 6A, *Specification for Wellhead and Tree Equipment*
ISO 27509, *Petroleum and natural gas industries — Compact flanged connections with IX seal ring*
N120, *Peças de Inserção entre Flanges*

L.3. SYMBOLS AND ABBREVIATED TERMS

For the purposes of this document, the following terms and definitions apply:

NPS Nominal Pipe Size

L.4. GENERAL REQUIREMENTS

L.4.1. Line blanks defined in the Figure L1 and those not covered by ASME B16.48 shall have its minimum thickness evaluated by the equation presented in paragraph 304.5.3 of ASME B31.3.

L.4.2. Those line blanks not specified by ASME B16.48 or paragraph 304.5.3 of ASME B31.3 shall be designed according to the paragraph 304.7.2 of ASME B31.3.

L.4.3. For class 10000, paddles and spacers shall be used rather than figure-8 (spectacles blind).

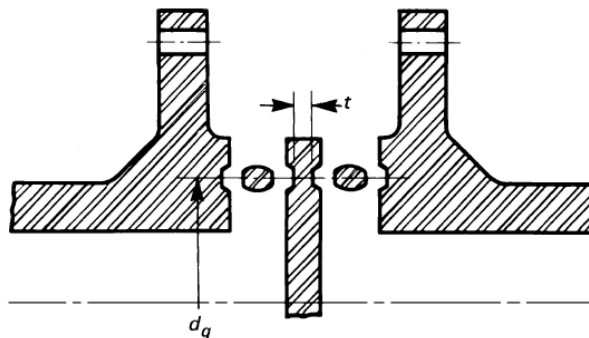


Figure L1 – Type of blank applied to API 6A flanges (REF.: ASME B31.3 para. 304.5.3).

	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 4 OF 4
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

L.5. MATERIALS

L.5.1. Materials and coating shall be in accordance with chapter 3 of ASME B31.3 specification and piping spec sheet.

L.6. DIMENSIONS

L.6.1. The paddles and spacers have their dimension described by Table L1. Any different spec with pressure class 10,000 not listed in Table L1 shall attend the requirements of ASME B31.3 and the dimensions of API 6A type 6BX flanges for 69.0 MPa.

Table L1 -Dimensions (mm) of paddle blanks and paddle spacers of class 10000 for spec J10, J12, J12P, J31, J31P, J40, and J40P.

Outside diameter of the paddle or spacer (mm)	Inside diameter of the spacer (mm)	Groove number	Nominal size of flange	Depth of Groove (E) (mm)	Width of Groove (N) (mm)	Pitch Diameter of Groove (dg) (mm)	Thickness (mm) J10	Thickness (mm) J12 and J12P	Thickness (mm) J31 and J31P	Thickness (mm) J40 and J40P
105.000	46.700	BX 151	1 13/16	5.560	11.840	65.930	26.577	25.310	30.330	24.627
111.000	53.100	BX 152	2 1/16	5.950	12.650	73.580	28.965	27.736	33.153	26.974
132.000	65.800	BX 153	2 9/16	6.750	14.070	88.700	33.743	32.590	38.792	31.672
152.000	78.500	BX 154	3 1/16	7.540	15.390	103.610	38.456	37.379	44.355	36.307
185.000	103.900	BX 155	4 1/16	8.330	17.730	132.890	46.190	45.261	53.755	43.885
302.000	180.100	BX 156	7 1/16	11.110	23.390	218.440	69.731	69.233	82.166	66.972
359.000	229.400	BX 157	9	12.700	26.390	272.670	84.309	84.085	99.831	81.262
429.000	280.200	BX 158	11	14.290	29.180	328.050	99.128	99.184	117.803	95.788
518.000	347.000	BX 159	13 5/8	15.880	32.490	400.150	117.462	117.882	140.242	113.739
518.000	347.000	BX 160	13 5/8	14.290	19.960	388.040	111.736	112.095	133.827	108.078
576.000	426.200	BX 161	16 3/4	17.070	23.620	474.320	135.430	136.225	162.433	131.314
576.000	426.200	BX 162	16 3/4	8.330	17.910	460.420	115.029	115.753	141.240	110.986
697.000	477.000	BX 163	18 3/4	18.260	25.550	537.950	151.184	152.299	181.808	146.730
697.000	477.000	BX 164	18 3/4	18.260	32.770	545.130	152.693	153.845	183.726	148.201
781.000	540.500	BX 165	21 1/4	19.050	27.200	605.360	166.932	168.388	201.394	162.120
781.000	540.500	BX 166	21 1/4	19.050	34.870	613.010	168.540	170.034	203.437	163.688
221.000	131.100	BX 169	5 1/8	9.530	16.920	159.740	54.233	53.440	63.327	51.786
359.000	229.400	BX 170	9	8.330	17.910	202.970	60.919	60.344	72.474	58.243
429.000	280.200	BX 171	11	8.330	17.910	252.370	71.302	70.976	85.669	68.363
518.000	347.000	BX 172	13 5/8	8.330	17.910	318.010	85.098	85.103	103.202	81.811

L.7. MARKING

L.7.1. The marking shall be applied by steel stamping or other marking device that leaves a legible imprint. When marking on the blind portion of the blanks, low stress marking shall be used and shall not impinge on the gasket seating surface.

L.7.2. Line blanks shall be marked with manufacturer's name, material specification, pressure class, and size (NPS).

L.7.3. The spacer shall have a hole of 6 mm in its web body to differentiate from paddle blank.

L.7.4. The paddle shall be stamped with the word "Blank".

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 1 de 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
ANNEX M UTILITY AND SERVICE COUPLINGS (MANDATORY)			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 2 de 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	
TABLE OF CONTENTS M.1. SCOPE.....3 M.2. NORMATIVE REFERENCES AND DESIGN SPECIFICATIONS.....3 M.3. DEFINITIONS AND ABBREVIATIONS.....4 M.4. REQUIREMENTS 5			

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 3 de 6
	TITLE:	PIPING SPECIFICATION FOR TOPSIDE	ESUP
			INTERNAL

M.1.SCOPE

M.1.1. This document only covers piping line couplings used for pressure class up to150. For higher pressure couplings application seller shall request Petrobras’ approval.

M.1.2. This specification does not dispense the SELLER with the compliance with any reference specification, code, law, regulatory or classification society requirements herein informed or elsewhere in the contract.

M.2.NORMATIVE REFERENCES AND DESIGN SPECIFICATIONS

M.2.1. CLASSIFICATION

M.2.1.1. Classification Society rules may only be waived upon the formal approval from the Classification Society itself and from BUYER.

M.2.2. CODES AND STANDARDS

M.2.2.1. Other recognized standards may be used, provided it can be shown that they meet or exceed the requirements of the standards referenced below. Formal approval from BUYER and from Classification Society is also required.

A-A-59553A

Coupling Halves, Cap and Wye; Quick Disconnect Pneumatic Hose, Two-Lug Universal Type.

ABS 2021

Rules For Building and Classing - Marine Vessels

ASME B1.20.1

Pipe Thread General Purpose (inch).

ASME B31.3

Process Piping.

ASME B31.1

Power Piping.

ASTM F1122

Standard Specification for Quick Disconnect Couplings (6 in. NPS and Smaller).

ISO 7241

Hydraulic fluid power — Quick-action couplings.

ISO 16028

Hydraulic fluid power. Dimensions and requirements of quick-action couplings, flush-face type.

M.2.3. GOVERNMENTAL REGULATION

M.2.3.1. Brazilian Government regulations are mandatory and shall prevail, if more stringent, over the requirements of this specification and other references herein.

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 4 de 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

M.2.4. DESIGN SPECIFICATION

DR-ENGP-I-1.15	COLOR CODING
I-ET-3010.00-1200-956-P4X-002	GENERAL PAINTING
I-ET-3010.2C-1200-200-P4X-101	PIPING MATERIAL SPECIFICATION - TOPSIDE
I-ET-3010.2C-1350-200-P4X-101	PIPING MATERIAL SPECIFICATION - HULL

M.3.DEFINITIONS AND ABBREVIATIONS

M.3.1. DEFINITIONS

M.3.1.1. All Terms and definitions are established in the latest revision I-ET-3010.00-1200-940-P4X-002 - GENERAL TECHNICAL TERMS.

M.3.2. ABBREVIATIONS

ABS	American Bureau of Shipping
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BR	Bilge
D	Diesel
FW	Fire Water (Sea Water)
GW	Grey Water
H	Hydraulic Oil
ISO	International Organization for Standardization
NPS	Nominal Pipe Size
PWH	Hot Fresh Water
SA	Service Air
SN	Start-up Nitrogen
SW	Aerated Sea Water
W	Industrial Water

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 5 de 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE	ESUP	
		INTERNAL	

M.4.REQUIREMENTS

M.4.1. The couplings shall attend the standards specifications outlined in Table 1.

M.4.2. The material of the coupling shall be compatible with the material of the piping specifications where they are installed.

M.4.3. Before selecting the coupling, it is necessary to certify that the working pressure of the coupling can withstand the maximum pressure foreseen for the piping line where the coupling will be installed.

M.4.4. The couplings shall provide perfect assembly with the pipes of piping utilities. The types of couplings and their features are described in Table 1.

M.4.5. Each piping shall be labeled near the block end valve with a designated color and tag, as foreseen by DR-ENGP-M-I-1.15. This practice enables personnel to identify the contents of the piping utility easily.

M.4.6. All piping utility lines are required to have protective caps at their end. These caps shall be tied to the pipe using a stainless steel chain to prevent accidental loss, as Figure 1 illustrates.

Table 1 - Features definition of piping utilities couplings.

Service fluid	Adaptor size	Piping adaptor	Hose adaptor	Standard
Start-up Nitrogen (SN)	¾" – 1 ½"	Male Camlock Adapter, Female NPT Thread	Female Camlock Adapter, Hose shank	ASTM F1122
Service Air (SA)	20mm – 50mm	Male ISO 7241 series B, Male NPT Thread	Female ISO 7241 series B, Female NPT Thread	ISO 7241
Aerated Sea Water (SW)	½" – 1"	Chicago Type III	Chicago Type I	A-A-59553A
Grey Water (GW)	½" – 1"	Chicago Type III	Chicago Type I	A-A-59553A
Industrial Water (W)	½" – 1"	Chicago Type III	Chicago Type I	A-A-59553A
Hot Fresh Water (PWH)	½" – 1"	Chicago Type III	Chicago Type I	A-A-59553A
Fire Water (FW)	-	International shore connector	International shore connector	ABS 2021
Diesel (D)	19mm – 51mm	Male ISO 16028 Flat Face, Female NPT Thread	Female ISO 16028 Flat Face, Female NPT Thread	ISO 16028
Hydraulic Oil (H)	19mm – 51mm	Male ISO 16028 Flat Face, Female NPT Thread	Female ISO 16028 Flat Face, Female NPT Thread	ISO 16028
Bilge (BR)	-	Standard Discharge Connection	Standard Discharge Connection	ABS 2021

 PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.2Q-1200-200-P4X-001	REV. B
	MARLIM LESTE E SUL		SHEET: 6 de 6
	TITLE: PIPING SPECIFICATION FOR TOPSIDE		ESUP
			INTERNAL

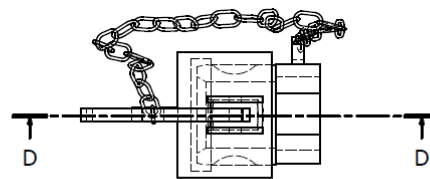
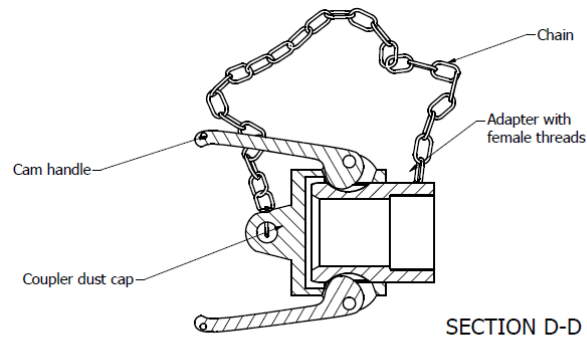


Figure 1 – Example of a Camlock coupling with dust cap and chain and a female thread end connection.