

	SPECIFICATION			I-ET-3000.00-1000-972-1AL-026					
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	PROGRAM:	ALL			-				
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SBS	TITLE:	COMPLEMENTARY QUALITY REQUIREMENT FOR SUBSEA EQUIPMENT			NP-1		QB		
INDEX OF REVISIONS									
REV.	DESCRIPTION AND/OR ALTERED SHEETS								
0 A B	<p style="text-align: center;">Original Issue Item 5.4.1.c) included; Items 2.2, 5.3.3, 5.4, 6.1, 6.2, 7.1.2, 7.3.1, 7.3.2, 9.1 e 9.4 removed; Items 3, 5.1, 6, 6.3, Table 1, 7.1.1, 7.2.1, 7.2.2, 8.1, 8.2 and 9.2 revised; Items 4, 5.1, 5.4.1 d), 6, 7, 8, 9 e 10 removed; Items 3, 5.3.4 c), 5.4.1 b)e 5.4.1 e) revised.</p>								
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1. PURPOSE

This Technical Specification establishes the minimum quality requirements to be met in the supply of subsea exploration and production equipment for Petrobras.

2. SCOPE

2.1. The requirements set forth herein are complementary to ET-0000.00-0000-972-1AL-001 - General Quality Requirement. In case of conflict this Complementary Quality Requirement prevails.

3. REFERENCES

- ABNT NBR ISO 9001 - Quality Management Systems - Requirements;
- ET-0000.00-0000-972-1AL-001 - General Quality Requirement.

4. INSPECTION PLANNING

The supplier shall issue a general assembly drawing indicating the items considered critical in its design, based on working pressure, exposure to well and injected fluids, well temperature, loading stresses, assembly and operating condition of the equipment and all the premises defined in the contractual documentation of Petrobras.

5. INSPECTION AND TEST PLAN - ITP

5.1. The supplier shall prepare an ITP contained in its Quality Plan, following the standards established by ISO 9001, General Quality Requirement and in this Complementary Quality Requirement.

5.2. The equipment and components shall be classified according to the project standard and other contractual documents, for example: API PSL 3G. The categorization and classification of the equipment according to the contractual documentation shall also be included in the ITP and relevant documentation.

5.3. For each finished subassemblies of the equipment and components supplied (ex.: valves, swivels, electrical system, choke, main structure, flow lines) shall be prepared a specific ITP to be approved by the Responsible for Manufacturing Inspection.

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5.4. An ITP shall be developed with critical items, considering at least the following features:

- a) exposure to the production and/or injection fluid and well pressure (pressure containing and/or controlling);
- b) components with standardized characteristics and/or dimensions that have interface with other equipment from other suppliers (interchangeability);
- c) hydraulic control or test circuits exposed to a high level of tension, including fasteners;
- d) main mechanical components of critical equipment and tool systems, locking and unlocking system of primary and secondary fittings and manual valve actuation system;
- e) relevant aspects of the design or manufacturing process, such as: pioneering design, operations or complexity of the manufacturing process and main NDT throughout the manufacturing process;
- f) systems, devices and components for sealing (seals, rings);
- g) requisitions defined in the contractual documents, Technical Specifications and Material Requisitions;
- h) control system equipment: sensors, electrical and hydraulic connectors, electronic components, etc;
- i) BAP, ANM, PLET and PLEM (main structure), MANIFOLD (main structure and main modules).

6. MINIMUM MANUFACTURING INSPECTION ACTIVITIES

6.1. The steps listed below shall be considered as minimum hold points by the Responsible for Manufacturing Inspection and shall be detailed in the ITP:

- a) Verify procedures approval by qualified personnel (dimensional control, welding, NDT, painting, coating and testing);
- b) Incoming inspection (except for items which final inspection will be performed at the sub-supplier site);
- c) Final and intermediate assembly – verify standardized interface jigs application;
- d) Factory Acceptance Test - FAT (including Integrity, Functional and Seal test);
- e) Electrical continuity test;
- f) Mechanical and electrical integration tests (SIT - Systems Integration Testing);
- g) Final inspection (Check list);
- h) Review of all manufacturing records provided in the ITP, including non-conformity reports issued during manufacturing, assembly and testing process.

6.2. Other inspection and testing activities required in the contractual documentation shall be included in the ITP.