



## 1 Scope

- a. This document defines the standard quality requirements for procurement of API 17D subsea trees.
- b. Annex A defines the Purchaser conformance verification and surveillance requirements.
- c. Annex B defines the certification and material traceability requirements.

## 2 Normative references

The following documents are referenced in one or more requirements in this document. For dated references, only the version cited applies. For undated references, the latest version of the referenced document (including any amendments) applies.

API 17D	Design and Operation of Subsea Production Systems - Subsea Wellhead and Tree Equipment.
API Specification Q1	Specification for Quality Management System Requirements for Manufacturing Organisations for the Petroleum and Natural Gas Industries.
ISO 9001	Quality management systems - Requirements.
S-561	Supplementary Requirements to API 17D Subsea Trees.

## 3 Terms and definitions

For the purpose of this document, the following terms and definitions apply:

### **Purchaser**

An associate or subsidiary, or other organisation acting as owner, or customer as designated in the Purchase Order.

### **Supplier**

Entity entering into a contract with Purchaser to provide materials, goods, supplies, equipment, or plant and includes the successors and (or) permitted assigns of such entity.

## 4 Symbols and abbreviations

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

CTOD	Crack tip open displacement.
DPI	Dye penetrant inspection.
EFAT	Extended factory acceptance test.
FAT	Factory acceptance test.
ITP	Inspection and test plan.

MPI	Magnetic particle inspection.
MPQ	Manufacturing process qualification.
MPS	Manufacturing process system.
NDE	Non-destructive examination.
NDT	Non-destructive testing.
OEM	Original equipment manufacturer.
PMI	Positive material identification.
PO	Purchase order.
POQR	Purchase order quality requirements.
ROV	Remotely operated vehicle.
SDRL	Supplier deliverable requirements list.
UT	Ultrasonic testing.

## **5 Quality requirements**

### **5.1 Quality management system**

Quality management systems shall conform to ISO 9001, API Specification Q1, or equivalent agreed by Purchaser.

### **5.2 Conformance verification**

- a. ITP or other operational planning and control documents provided by Supplier shall define the specific controls to be implemented by Supplier to conform with S-561 and this POQR.
- b. Controls shall be applied to products and services provided by Supplier and sub-suppliers.
- c. ITP or other operational planning and control documents, shall include the Purchaser:
  1. Verification and surveillance requirements for primary OEM and tier 1 sub-suppliers included in Annex A.
  2. Material traceability requirements included in Annex B.
- d. Conformance verification requirements in Annex A are minimum requirements, alternative requirement shall apply if specified in the Purchase Order.

## Annex A - Purchaser surveillance and inspection

A	REQUIREMENTS PRIOR TO MANUFACTURE / ASSEMBLY / TESTING	Option A <sup>(1)</sup>	Option B <sup>(1)</sup>
1	Pre-production meeting and/or Pre-inspection meeting.	W	H
B	REQUIREMENTS DURING MANUFACTURE / ASSEMBLY / TESTING	Option A <sup>(1)</sup>	Option B <sup>(1)</sup>
Forgings			
1	MPQ and MPS approval	-	R
2	Raw Material Verification (PMI <sup>(2)</sup> or other)	R	S
3	Forge Process	R	S
4	Heat Treatment / Normalization	R	S
5	Pre-heat Treatment Dimensional Verification	-	S
6	Chemical analysis PMI <sup>(2)</sup> , Product Ladle Analysis	R	S
7	Simulated post weld heat treatment	R	S
8	Traceability	R	S
9	Test sample prep	S	S
10	Mechanical Testing (Impact, tensile, hardness, CTOD)	R	W
11	Volumetric NDE	S	W
12	Visual Inspection	S	S
13	Dimensional verification	S	S
Tree manufacture			
14	Assembly set out traceability and PMI <sup>(2)</sup> (if applicable)	S	W
15	Part Marking	S	S
16	Visual Inspection	S	S
17	PMI <sup>(2)</sup> and Hardness Test of Fasteners	R	R
18	Welding/cladding	R	S
19	NDT operations (UT, MPI, DPI, hardness testing and radiography)	R	S
20	Hydrostatic Body Test	S	W
21	Hydraulic/chemical line pressure test	S	W
22	Hydrostatic Seat/Gate Test of Valves	S	W
23	Gas Test Body (If applicable)	S	W
24	Gas Test Seat/Gate (If applicable)	S	W
25	Functional FAT Testing	S	W
26	ROV Bucket Interface	S	W
27	Drift Test (if applicable)	S	W
28	Bolt Torque Verification	S	S
29	Continuity Test	S	S
30	Proof Load Test (if applicable)	S	W
31	Flushing and Cleanliness Testing	S	S
32	EFAT (if applicable)	R	W
33	Examine lifting attachments and certification	S	W
34	Coating/Painting Inspection	S	S
35	Insulation Inspection (if applicable)	S	W
36	Verification of critical dimensions and surface finish	R	W
C	REQUIREMENTS FOR EQUIPMENT RELEASE AND PURCHASE ORDER COMPLETION	Option A <sup>(1)</sup>	Option B <sup>(1)</sup>

1	Inspection of ship loose items, spares and special tools as applicable.	S	S
2	Final inspection to verify all inspection and tests are complete in conformance to the requirements of the Purchase Order.	-	H
3	Handling, preservation and packaging, preparations for shipping.	S	S
4	Manufacturing record book.	R	R
5	Installation, operation and maintenance manual.	R	R
6	Despatch dossier(s).	R	R
7	Final release.	H	H
<b>NOTES</b>			
<p>1. Optional intervention points "Option A" or "Option B" have been provided based on maturity of Purchaser/Supplier relationship. The Purchaser will specify which option is required.</p> <p>2. PMI only required for corrosion resistant alloys and stainless steels. Extent of testing as specified in Purchase Order.</p>			

**Key:**

**Hold point (H)**

A critical operation or process beyond which work shall not proceed without attendance by Purchaser representative or written Purchaser approval. Notification for the stated activity will be provided on the basis of 4 working days for facilities where there is an onsite Purchaser inspector or 7 working days for all other facilities.

**Witness point (W)**

An operation or process that requires witness by the Purchaser representative. The operation or process may proceed without witness only with prior Purchaser approval or once the notification period has lapsed. Repetitive witnessing activities may be by percentage as specified.

Notification for the stated activity will be provided on the basis of 4 working days for facilities where there is an onsite Purchaser inspector or 7 working days for all other facilities.

**Surveillance (S)**

Periodic review by the Purchaser representative of an activity, operation, process or documentation at Supplier or sub-supplier premises. No specific notification is required and the activity, operation or process may proceed if the Purchaser representative is not present. Regular reporting of activities based upon a 2 week look ahead or other agreed arrangement should be provided to allow Purchaser representative the opportunity to witness the scopes.

**Review (R)**

Purchaser review of Supplier documentation providing objective evidence of the Supplier's conformance to the Purchase Order requirements. Documentation to be submitted to Purchaser office as stated in SDRL.

## Annex B - Material traceability and certification requirements

Item	Certificate type	Material traceability level	Additional requirements
<p><b>This table intended to provide the material certification and traceability requirements for key items. The inclusion of standard requirements will be considered in future updates</b></p>			
<p><u>Explanatory notes:</u></p> <p>A. "2.1" Declaration of Compliance with the PO - A document in which the Supplier declares that the products supplied are in compliance with the requirements of the PO, without inclusion of any test results.</p> <p>B. "2.2" Test Report - A document in which the Supplier declares that the products supplied are in compliance with the requirements of the PO, and in which test results are supplied based on non-specific inspection and testing.</p> <p>C. "3.1" Inspection Certificate - A document with test results based on specific inspection and testing, issued by the Supplier and validated by the Supplier's authorised inspection representative independent of the manufacturing department.</p> <p>D. "3.2" Inspection Certificate - A document prepared by both the Supplier's authorised inspection representative, independent of the manufacturing department, and either the Purchaser nominated representative or the inspector designated by the official regulations in which they declare that the products supplied are in compliance with the requirements of the order and for which test results are supplied.</p> <p>Additionally, Purchaser has specified that all material product testing associated with "3.2" Inspection Certificates shall be performed in the presence of either a Purchaser nominated representative or the inspector designated by the official regulations, and the resultant test report stamped as "Witnessed". Failure to adhere to this requirement may lead to rejection of all material(s) being qualified for production.</p> <p>E. Level I - Full Traceability - Material is uniquely identified and its history tracked from manufacture through stockists (where applicable) to Supplier and to actual position on the equipment with specific location defined on a material placement record. (The traceability to a specific location only applies to skids / packaged equipment, not to bulks)</p> <p>F. Level II - Type Traceability - Supplier maintains a system to identify material throughout manufacture, with traceability to a material certificate.</p> <p>G. Level III - Compliance Traceability - Supplier maintains a system of traceability that enables a Declaration of Compliance to be issued by the Supplier.</p>			