



Exploration & Production

GENERAL SPECIFICATION

Drilling & Wells

GS EP FP 332

Specification for Surface Wellhead & Christmas Tree Manufacturing
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1. Scope

This document defines the requirements for Quality Assurance and Quality Control with respect to design, material, manufacturing, testing and final supply of Wellhead & Xmas Tree equipment for the use within TOTAL.

The minimum applied standard for design, manufacture, inspection and testing shall be [API SPEC 6A](#) PSL 3 unless otherwise specified within this General Specification or the TOTAL Purchase Order or Contract.

This General Specification applies to the following but not limited list of equipment:

Wellhead equipment:

- casing head housings;
- casing head spools;
- tubing head spools;
- cross-over spools;
- Multi-stage head housings and spools.

Connectors and fittings:

- cross-over connectors;
- Tubing head adapters;
- Top connectors;
- Tees and crosses;
- Fluid-sampling devices;
- Adapter and spacer spools.

Casing and tubing hangers:

- mandrel hangers;
- Slip hangers.

Valves and chokes:

- single valves;
- multiple valves;
- actuated valves;
- valves prepared for actuators;
- check valves;
- chokes;
- surface and underwater safety valves and actuators;
- Back-pressure valves.

Loose connectors (flanged, threaded, other end connectors (OEC), and welded):

- weld neck connectors;



- blind connectors;
- threaded connectors;
- adapter and spacer connectors;
- bull plugs;
- Valve-removal plugs.

Other equipment:

- actuators;
- hubs;
- pressure boundary penetrations;
- ring gaskets;
- running and testing tools
- Wear bushings

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
ISO 10423/API SPEC 6A	Petroleum and Natural Gas Industries – Drilling and Production Equipment – Wellhead and Xmas Tree Equipment Second Edition
NACE MR0175/ISO 15156	Material Requirements. Sulphide Stress Cracking. Resistant Metallic Material for Oil Field Equipment
API SPEC 6A718	Specification of Nickel Base Alloy 718 (UNS N07718) for Oil & Gas Drilling and Production equipment
API SPEC 16A	Specification for Drill-Through Equipment
ASNT-SNT-TC-1A	Outlines for Qualification of Nondestructive Testing Personnel
ISO 14001	Environmental management systems
ISO TS 29001	Quality management system requirements for product and service supply
ISO 13678	Petroleum and natural gas industries - Evaluation and testing of thread compounds for use with casing, tubing and line pipe
ISO 11960	Petroleum and natural gas industries - Steel pipes for use as casing or tubing for wells
ISO 10005	Quality management systems - Guidelines for quality plans
ASME	Boilet and Pressure Vessel Code



Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
Not Applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP COR 350	External protection of offshore and coastal structures and equipment by painting

3. Quality Management requirements

3.1 Quality Assurance

The selected contractor/supplier/manufacture shall be able to demonstrate conformity and be auditable to [ISO TS 29001](#) / Q1, and [ISO 14001](#).

The selected contractor/supplier/manufacture and/or its Subcontractor(s)/Supplier(s) shall be able to demonstrate conformity and be auditable to ISO/API standards related to materials to be delivered.

3.2 Quality control

In all respects to manufacturing and testing the contractor/supplier/manufacture shall provide a **Quality Control Plan** (QCP) to TOTAL for approval. Inside this QCP will be the agreed production / testing route and the third party inspection points for TOTAL. The QCP shall conform to [ISO 10005](#) and shall be submitted for approval prior any manufacturing.



4. Contract Management

4.1 Project contract management

At the time of tendering for a contract a flow diagram should be submitted for approval as part of the overall Quality management process.

4.2 Purchase order management

In the event of Direct Purchase Order award a flow diagram should be submitted for approval as part of the overall Quality management process .

4.3 Subcontract

Any manufacturing subcontracted shall be the responsibility of the contractor/supplier/manufacturer who was awarded the contract / purchase order by TOTAL. All dialogue if required between the contractor/supplier/manufacturer's sub vendor and TOTAL will be via the contractor/supplier/manufacturer.

5. Design requirements

5.1 General

Unless differently quoted on the purchase agreement the design requirements shall include methods, assumptions and calculations, and shall include those criteria for size, test, working and operating pressures, materials, environment (temperature limits, chemical) and other pertinent requirements upon which the design is based. Design documentation shall be reviewed and verified by a qualified individual other than the individual who created the original design.

Equipments shall be manufactured to drawings and specifications that are substantially the same as those of the size, type and model of equipment which has passed the validation test.

The contractor/supplier/manufacturer shall establish verified internal yield pressure, collapse pressure and minimum tensile strength, temperature limits, and rated working pressure, excluding end connections. The contractor/supplier/manufacturer shall identify the critical component(s) of the product and the modes of stress. The contractor/supplier/manufacturer shall calculate the stress level in the critical component(s) based upon the maximum loads in the design input requirements to determine those component(s) which are critically stressed. Critically stressed components are those which are stressed to 90% or greater of the minimum design yield strength of calculations, which shall include consideration of temperature limit effects and thermal cycles. Metal mechanical properties de-rating shall be in accordance with [ASME](#) Boiler and Pressure Vessel, Section II, Part D.

The design shall take into account the effects of pressure containment and pressure-induced loads. Specialized conditions, such as pressure testing with temporary test plugs, shall also be considered.

Component and subassembly identification and interchange ability shall be required within each contractor/supplier/manufacturer's size, type and model, including working pressure rating of equipment. Cumulative dimension tolerances of components shall be such that proper operation of the equipment is assured. This requirement applies to supplier/manufacturer assembled equipment and to replacement components or sub-assemblies.