Specification for Wellhead and Christmas Tree Equipment

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API Foreword

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Standards referenced herein may be replaced by other international or national standards that can be shown to meet or exceed the requirements of the referenced standard. Manufacturers electing to use another standard in lieu of a referenced standard are responsible for documenting equivalency.

This American National Standard is under the jurisdiction of the API Subcommittee on Valves and Wellhead Equipment (API C1/SC6). This standard is a modified adoption of the English version of ISO 10423:2003. ISO 10423 was prepared by Technical Committee ISO/TC 67, Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries, SC 4, Drilling and production equipment which was based on the prior API Specification 6A, 17th Edition.

In this American National Standard certain technical modifications have been made. These technical modifications from the ISO Standard have not been incorporated directly into this API adopt-back version.

The modifications have been noted with an arrow (➔) adjacent to the clause, table, figure, etc. that has been modified.

A complete list of modifications can be found in Annex O—API Regional Annex. Informative Annex N—API Monogram and Test Agency Licensing is also included giving guidance for the users.

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ISO Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10423 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 4, *Drilling and production equipment*.

This third edition cancels and replaces the second edition (ISO 10423:2001), of which it constitutes a minor revision. Details of the differences between this third edition and the second edition may be obtained, upon request, from ISO/TC 67/SC 4.

Introduction

This International Standard is based on API Spec 6A, seventeenth edition, February 1996, its errata and supplement, and API Spec 6AV1, first edition, February 1996.

The contents of API Spec 14D (upon which ISO 10433 was based) and API Recommended Practice 14H (upon which ISO 10419 was based) have been incorporated in API Spec 6A, seventeenth edition.

The International System of units (SI) is used in this International Standard. However, nominal sizes are shown as fractions in the inch system.

The fractions and their decimal equivalents are equal and interchangeable. Metric conversions and inch dimensions in this International Standard are based on the original fractional inch designs. Functional dimensions have been converted into the metric system to ensure interchangeability of products manufactured in metric or inch systems (see also Annex B).

Tables referenced in the main body of this International Standard which are marked with an asterisk are repeated in Annex B in US Customary units with the same table number as in the main body but with the prefix B. In figures where dimensions are only given in inches, the values of surface roughness have been indicated in accordance with US draughting conventions. See also Annex M for listings of tables and figures.

Users of this International Standard should be aware that further or differing requirements may be needed for individual applications. This International Standard is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This may be particularly applicable where there is innovative or developing technology. Where an alternative is offered, the vendor should identify any variations from this International Standard and provide details.

Petroleum and natural gas industries — Drilling and production equipment — Wellhead and christmas tree equipment

1 Scope

1.1 Purpose

This International Standard specifies requirements and gives recommendations for the performance, dimensional and functional interchangeability, design, materials, testing, inspection, welding, marking, handling, storing, shipment, purchasing, repair and remanufacture of wellhead and christmas tree equipment for use in the petroleum and natural gas industries.

This International Standard does not apply to field use, field testing or field repair of wellhead and christmas tree equipment.

1.2 Applicability

This International Standard is applicable to the following specific equipment.

a) Wellhead equipment:

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

b) Connectors and fittings:

- cross-over connectors;
- tubing head adapters;
- top connectors;
- tees and crosses;
- fluid-sampling devices;
- adapter and spacer spools.

c) Casing and tubing hangers:

- mandrel hangers;

- slip hangers.

d) 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.

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

- weld neck connectors;
- blind connectors;
- threaded connectors;
- adapter and spacer connectors;
- bullplugs;
- valve-removal plugs.

f) Other equipment:

- actuators;
- hubs;
- pressure boundary penetrations;
- ring gaskets;
- running and testing tools (in Annex H);
- wear bushings (in Annex H).

The nomenclature used in this International Standard for typical equipment is shown in Figure 1 and Figure 2. All parts whose physical dimensions conform to the metric tables incorporated into the body of this International Standard or to the US Customary units tables in Annex B are acceptable (see Introduction).

1.3 Service conditions

This International Standard defines service conditions, in terms of pressure, temperature and material class for the well-bore constituents, and operating conditions.