

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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Content	Page
API FOREWORD	ii
ISO FOREWORD	vi
ISO INTRODUCTION	vii
1 SCOPE	1
1.1 Purpose	1
1.2 Applicability	1
1.3 Service conditions	2
1.4 Product specification levels (PSL)	3
2 NORMATIVE REFERENCES	6
3 TERMS, DEFINITIONS AND ABBREVIATED TERMS	8
3.1 Terms and definitions	8
3.2 Abbreviated terms	20
4 DESIGN AND PERFORMANCE — GENERAL REQUIREMENTS	21
4.1 Performance requirements — General	21
4.2 Service conditions	21
4.3 Design methods	23
4.4 Miscellaneous design information	27
4.5 Design documentation	28
4.6 Design review	28
4.7 Design verification	28
5 MATERIALS — GENERAL REQUIREMENTS	28
5.1 General	28
5.2 Written specifications	28
5.3 Mandrel tubing and casing	29
5.4 Bodies, bonnets, end and outlet connections	32
5.5 Ring gaskets	39
5.6 Test coupons (TC)	40
5.7 Qualification test coupons (QTC)	43
5.8 Heat-treating equipment qualification	46
5.9 Material qualification	46
5.10 Bullplugs and valve-removal plugs	46
5.11 Back-pressure valves	46
5.12 Pressure-boundary penetrations	46
5.13 Wear bushings	46
5.14 Hub-end connectors	46
6 WELDING — GENERAL REQUIREMENTS	47
6.1 General	47
6.2 Non-pressure-containing weldments other than weld overlays (PSL 1 to PSL 3)	47
6.3 Pressure-containing fabrication weldments for bodies, bonnets, end and outlet connections, bullplugs, valve-removal plugs and back-pressure valves	47
6.4 Pressure-containing repair weldments for bodies, bonnets, end and outlet connections, bullplugs, valve-removal plugs and back-pressure valves	52
6.5 Weld overlay for corrosion resistance and/or hard facing and other material surface property controls	54

7	QUALITY CONTROL	57
7.1	General	57
7.2	Measuring and testing equipment	57
7.3	Quality control personnel qualifications	58
7.4	Quality control requirements	58
7.5	Quality control records requirements	95
8	EQUIPMENT MARKING	100
8.1	Marking requirements	100
8.2	Wellhead equipment	102
8.3	Connectors and fittings	102
8.4	Casing and tubing hangers	102
8.5	Valves and chokes	103
8.6	Loose connectors [flanged, threaded, other end connectors (OEC) and welded]	104
8.7	Other equipment	104
8.8	Studs and nuts	105
8.9	Christmas trees	105
8.10	Valve-removal plugs	105
8.11	Bullplugs	105
8.12	Back-pressure valves	106
9	STORING AND SHIPPING	106
9.1	Draining after testing	106
9.2	Rust prevention	106
9.3	Sealing surface protection	106
9.4	Assembly and maintenance instructions	106
9.5	Ring gaskets	106
9.6	Age control of non-metallic materials	106
10	EQUIPMENT-SPECIFIC REQUIREMENTS	107
10.1	Flanged end and outlet connections	107
10.2	Threaded end and outlet connections	140
10.3	Studs and nuts	146
10.4	Ring gaskets	148
10.5	Valves	154
10.6	Casing and tubing heads	169
10.7	Casing and tubing hangers	174
10.8	Tubing-head adapters	179
10.9	Chokes	181
10.10	Tees and crosses	184
10.11	Test and gauge connections for 103,5 MPa and 138,0 MPa (15 000 psi and 20 000 psi) equipment	189
10.12	Fluid sampling devices	189
10.13	Christmas trees	192
10.14	Cross-over connectors	192
10.15	Adapter and spacer spools	197
10.16	Actuators	198
10.17	Lock screws, alignment pins and retainer screw packing mechanisms	202
10.18	Other end connectors (OECs)	203
10.19	Top connectors	204
10.20	Surface and underwater safety valves and actuators for offshore service	205
10.21	Bullplugs	210
10.22	Valve-removal plugs	213
10.23	Other pressure-boundary penetrations	213
10.24	Back-pressure valves	214
11	REPAIR AND REMANUFACTURE	214
	ANNEX A (informative) Purchasing guidelines	215
	ANNEX B (informative) US Customary unit tables and data for this International Standard	234

ANNEX C (informative) Method of calculating stud bolt lengths for type 6B and 6BX flanges	289
ANNEX D (informative) Recommended flange bolt torque	291
ANNEX E (informative) Recommended weld groove design dimensions	295
ANNEX F (informative) Performance verification procedures	299
ANNEX G (informative) Design and rating of equipment for use at elevated temperatures	333
ANNEX H (normative) Design and manufacture of surface wellhead running, retrieving and testing tools, clean-out tools and wear bushings	336
ANNEX I (normative) Performance verification procedures for surface safety valves and underwater safety valves	341
ANNEX J WITHDRAWN	349
ANNEX K (informative) Recommended specifications for top connectors for christmas trees	362
ANNEX L (normative) Specifications for valve-removal preparations and valve-removal plugs	377
ANNEX M (informative) List of tables and figures	393
ANNEX N (informative) API Monogram and test agency licensing	403
ANNEX O (normative) API regional annex	404
ANNEX P (informative) Recommended practice for qualification of heat-treating equipment	414
Bibliography	417

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.