SLOVENSKI STANDARD

SIST EN ISO 10432:2005

april 2005

Industrija za predelavo nafte in zemeljskega plina - Oprema za vrtine - Oprema podzemnih varnostnih ventilov (ISO 10432:2004)

Petroleum and natural gas industries - Downhole equipment - Subsurface safety valve equipment (ISO 10432:2004)

ICS 75.180.10

Referenčna številka
SIST EN ISO 10432:2005(en)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10432

December 2004

ICS 75.180.10

Supersedes EN ISO 10432:1999

English version

Petroleum and natural gas industries - Downhole equipment - Subsurface safety valve equipment (ISO 10432:2004)

Industries du pétrole et du gaz naturel - Equipement de forage vertical - Vannes de protection de fond de puits (ISO 10432:2004)

This European Standard was approved by CEN on 10 December 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN ISO 10432:2004: E

Foreword

This document (EN ISO 10432:2004) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum and natural gas industries" in collaboration with Technical Committee CEN/TC 12 "Materials, equipment and offshore structures for petroleum and natural gas industries", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

This document supersedes EN ISO 10432:1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 10432:2004 has been approved by CEN as EN ISO 10432:2004 without any modifications.

INTERNATIONAL STANDARD

ISO 10432

Third edition
2004-12-15

Petroleum and natural gas industries — Downhole equipment — Subsurface safety valve equipment

Industries du pétrole et du gaz naturel — Équipement de forage vertical — Vannes de protection de fond de puits

Reference number
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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 10432 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 10432:1999), which has been technically revised.

Introduction

This International Standard has been developed by users/purchasers and suppliers/manufacturers of subsurface safety valves intended for use in the petroleum and natural gas industry worldwide. This International Standard is intended to give requirements and information to both parties in the selection, manufacture, testing and use of subsurface safety valves. Furthermore, this International Standard addresses the minimum requirements with which the supplier/manufacturer is to comply so as to claim conformity with this International Standard.

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

The requirements for lock mandrels and landing nipples previously contained in this International Standard are now included in ISO 16070.

Petroleum and natural gas industries — Downhole equipment — Subsurface safety valve equipment

1 Scope

This International Standard provides the minimum acceptable requirements for subsurface safety valves (SSSVs). It covers subsurface safety valves including all components that establish tolerances and/or clearances which may affect performance or interchangeability of the SSSVs. It includes repair operations and the interface connections to the flow control or other equipment, but does not cover the connections to the well conduit.

NOTE Limits: The subsurface safety valve is an emergency safety device, and is not intended or designed for operational activities, such as production/injection reduction, production stop, or as a backflow valve.

Redress activities are beyond the scope of this International Standard, see Clause 8.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 3601-1, *Fluid power systems — O-rings — Part 1: Inside diameters, cross-sections, tolerances and size identification code*

ISO 3601-3, *Fluid systems — Sealing devices — O-rings — Part 3: Quality acceptance criteria*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*

ISO 6892, *Metallic materials — Tensile testing at ambient temperature*

ISO 9000:2000, *Quality management systems — Fundamentals and vocabulary*

ISO 9712, *Non-destructive testing — Qualification and certification of personnel*

ISO 10414-1, *Petroleum and natural gas industries — Field testing of drilling fluids — Par 1: Water-based fluids*

ISO 10417, *Petroleum and natural gas industries — Subsurface safety valve systems — Design, installation, operation and redress*

ISO 13628-3, *Petroleum and natural gas industries — Design and operation of subsea production systems — Part 3: Through flowline (TFL) systems*

ISO 13665, *Seamless and welded steel tubes for pressure purposes — Magnetic particle inspection of the tube body for the detection of surface imperfections*

ISO 15156 (all parts), *Petroleum and natural gas industries — Materials for use in H_2S-containing environments in oil and gas production*

ISO 16070, *Petroleum and natural gas industries — Downhole equipment — Lock mandrels and landing nipples*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ANSI/NCSL Z540-1:1994, *General requirements for calibration laboratories and measuring and test equipment*[1)]

API Manual of Petroleum Measurement Standards, Chapter 10.4, *Determination of sediment and water in crude oil by the centrifuge method (field procedure)*[2)]

API Spec 5B, *Threading, gauging, and thread inspection of casing, tubing, and line pipe threads*

API Spec 14A, *Specification for subsurface safety valve equipment*

ASME Boiler and Pressure Vessel Code, Section II, *Materials specification*[3)]

ASME Boiler and Pressure Vessel Code, Section V, *Nondestructive examination*

ASME Boiler and Pressure Vessel Code, Section VIII:2001, *Pressure vessels*

ASME Boiler and Pressure Vessel Code, Section IX, *Welding and brazing qualifications*

ASTM A 388/A 388M, *Standard practice for ultrasonic examination of heavy steel forgings*[4)]

ASTM A 609/A 609M, *Standard practice for castings, carbon, low-alloy, and martensitic stainless steel, ultrasonic examination thereof*

ASTM D 395, *Standard test methods for rubber property — Compression set*

ASTM D 412, *Standard test methods for vulcanized rubber and thermoplastic elastomers — Tension*

ASTM D 1414, *Standard test methods for rubber O-rings*

ASTM D 2240, *Standard test methods for rubber propert — Durometer hardness*

ASTM E 94, *Standard guide for radiographic examination*

ASTM E 140, *Standard hardness conversion tables for metals. (Relationship among Brinell hardness, Vickers hardness, Rockwell hardness, superficial hardness, Knoop hardness, and scleroscope hardness)*

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1) NCSL International, 2995 Wilderness Place, Suite 107, Boulder, Colorado 80301-5404, USA.

2) American Petroleum Institute, 1220 L Street NW, Washington, DC 20005-4070, USA.

3) American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990, USA.

4) American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, USA.

ASTM E 165, *Standard test method for liquid penetrant examination*

ASTM E 186, *Standard reference radiographs for heavy-walled [2 to 4 1/2-in. (51 to 114-mm)] steel castings*

ASTM E 280, *Standard reference radiographs for heavy-walled [4 1/2 to 12-in. (114 to 305-mm)] steel castings*

ASTM E 428, *Standard practice for fabrication and control of steel reference blocks used in ultrasonic inspection*

ASTM E 446, *Standard reference radiographs for steel castings up to 2 in. (51 mm) in thickness*

ASTM E 709, *Standard guide for magnetic particle examination*

BS 2M 54:1991, *Temperature control in the heat treatment of metals*[5)]

SAE-AMS-H-6875:1998, *Heat treatment of steel raw materials*[6)]

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9000:2000 and the following apply.

3.1
bean
orifice
designed restriction causing the pressure drop in velocity-type SSCSVs

3.2
design acceptance criteria
defined limits placed on characteristics of materials, products, or services established by the organization, customer, and/or applicable specifications to achieve conformity to the product design

[ISO/TS 29001:2003]

3.3
design validation
process of proving a design by testing to demonstrate conformity of the product to design requirements

[ISO/TS 29001:2003]

3.4
design verification
process of examining the result of a given design or development activity to determine conformity with specified requirements

[ISO/TS 29001:2003]

3.5
end connection
thread or other mechanism providing equipment-to-tubular interface

3.6
environment
set of conditions to which the product is exposed

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5) BSI, Customer Services, 389 Chiswick High Road, London W4 4AL, UK.

6) SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, USA.