



# SLOVENSKI STANDARD SIST EN ISO 10432:2002

01-januar-2002

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**Petroleum and natural gas industries - Downhole equipment - Subsurface safety valve equipment (ISO 10432:1999)**

Petroleum and natural gas industries - Downhole equipment - Subsurface safety valve equipment (ISO 10432:1999)

Erdöl- und Erdgasindustrien - Bohrloch-Ausrüstung - Untertage-Sicherheitsventil-Ausrüstung (ISO 10432:1999)

Industries du pétrole et du gaz naturel - Equipement de forage vertical - Vannes de protection de fond de puits (ISO 10432:1999)

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**Ta slovenski standard je istoveten z: EN ISO 10432:1999**

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**ICS:**

75.180.10	Oprema za raziskovanje in odkopavanje	Exploratory and extraction equipment
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**en**

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NORME EUROPÉENNE  
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Petroleum and natural gas industries - Downhole equipment -  
Subsurface safety valve equipment (ISO 10432:1999)

Industries du pétrole et du gaz naturel - Equipement de  
forage vertical - Vannes de protection de fond de puits (ISO  
10432:1999)

This European Standard was approved by CEN on 17 September 1999.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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EN ISO 10432:1999

## Foreword

CORRECTED 1999-12-09

The text of the International Standard ISO 10432:1999 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 May 2000, and conflicting national standards shall be withdrawn at the latest by May 2000.

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

### Endorsement notice

The text of the International Standard ISO 10432:1999 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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**Annex ZA (normative)****Normative references to international publications  
with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 11960	1996	Petroleum and natural gas industries - Steel pipes for use as casing or tubing for wells	EN ISO 11960	1998

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# INTERNATIONAL STANDARD

**ISO  
10432**

Second edition  
1999-11-01

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## **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*

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## ISO 10432:1999(E)

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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.

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.

This International Standard was developed by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum and natural gas industries*, Subcommittee SC 4, *Drilling and production equipment*.

This second edition cancels and replaces the first edition (ISO 10432:1993) and includes the changes in API 14A, ninth edition, 1994, and its Supplement dated December 1997.

Annex B and Annex E form a normative part of this International Standard. Annexes A, C, D and F are for information only.

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## Introduction

This International Standard has been developed by users/purchasers and suppliers/manufacturers of subsurface safety valve equipment 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 valve equipment. Further, this International Standard addresses requirements that set the minimum parameters with which the supplier/manufacturer must comply to claim conformity with this standard.

Users of this International Standard should be aware that further or differing requirements might 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.

Upon publication of ISO 16070, *Petroleum and natural gas industries — Downhole equipment — Lock mandrels and landing nipples*, as an International Standard, the requirements for lock mandrels and landing nipples in this International Standard 10432 will be superseded.

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

## 1 Scope

This International Standard was formulated to provide the minimum acceptable requirements for subsurface safety valve (SSSV) equipment. It covers subsurface safety valves, safety valve locks, safety valve landing nipples and all components that establish tolerances and/or clearances which may affect performance or interchangeability of the SSSV equipment. Safety valve locks, safety valve landing nipples and SSSVs manufactured by different facilities or manufacturers may be supplied as separate items.

**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.

## 2 Normative references

The following normative documents contain provision which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 2859-1:1999, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality level (AQL) for lot-by-lot inspection.*

ISO 3601-1:1988, *Fluid systems — Sealing devices — O-rings — Part 1: Inside diameters, cross-sections, tolerances and size identification code.*

ISO 3601-3:—<sup>1)</sup>, *Fluid power systems — O-rings — Part 3: Quality acceptance criteria.*

ISO 10417:1993, *Petroleum and natural gas industries — Subsurface safety valve systems — Design, installation, operation and repair.*

ISO 11960:—<sup>2)</sup>, *Petroleum and natural gas industries — Steel pipes for use as casing or tubing for wells.*

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

API Spec 5B:1996, *Threading, gauging, and thread inspection of casing, tubing, and line pipe threads.*

API RP 13B1:1990 (and 1993, 1996 supplements), *Standard procedure for field testing water-based drilling fluids.*

API Manual of Petroleum Measurement Standards, Chapter 10.4:1988 (reaffirmed 1993), *Determination of sediment and water in crude oil by the centrifuge method (field procedure).*

1) To be published. (Revision of ISO 3601-3:1987)

2) To be published. (Revision of ISO 11960:1996)

- ASME Boiler and Pressure Vessel Code, Section II:1998, *Materials specification*.
- ASME Boiler and Pressure Vessel Code, Section V:1998, *Nondestructive testing*.
- ASME Boiler and Pressure Vessel Code, Section VIII:1998, *Pressure vessels*.
- ASME Boiler and Pressure Vessel Code, Section IX:1998, *Welding and brazing qualifications*.
- ASTM A 370:1997, *Standard test methods and definitions for mechanical testing of steel products*.
- ASTM A 388/A 388M:1995, *Standard practice for ultrasonic examination of heavy steel forgings*.
- ASTM A 609/A 609M:1991, *Standard practice for castings, carbon, low-alloy, and martensitic stainless steel, ultrasonic examination thereof*.
- ASTM D 395:1998, *Standard test methods for rubber property — Compression set*.
- ASTM D 412:1998, *Standard test methods for vulcanized rubber and thermoplastic rubbers and thermoplastic elastomers — Tension*.
- ASTM D 1414:1994, *Standard test methods for rubber O-rings*.
- ASTM D 1415:1988, *Standard test methods for rubber property — International hardness*.
- ASTM D 2240:1997, *Standard test methods for rubber property — Durometer hardness*.
- ASTM E 10:1998, *Standard test method for Brinell hardness of metallic materials*.
- ASTM E 18:1997, *Standard test methods for Rockwell hardness and Rockwell superficial hardness of metallic materials*.
- ASTM E 92:1982, *Standard test method for Vickers hardness of metallic materials*.
- ASTM E 94:1993, *Standard guide for radiographic testing*.
- ASTM E 140:1997, *Standard hardness conversion tables for metals*.
- ASTM E 165:1995, *Standard test method for liquid penetrant examination*.
- ASTM E 186:1993, *Standard reference radiographs for heavy-walled [2 to 4 1/2-in. (51 to 114-mm)] steel castings*.
- ASTM E 280:1993, *Standard reference radiographs for heavy-walled [4 1/2 to 12-in. (114 to 305-mm)] steel castings*.
- ASTM E 428:1992, *Standard practice for fabrication and control of steel reference blocks used in ultrasonic inspection*.
- ASTM E 446:1993, *Standard reference radiographs for steel castings up to 2 in. (51 mm) in thickness*.
- ASTM E 709:1995, *Standard guide for magnetic particle examination*.
- MIL-H-6875H:1989, *Process for heat treatment of steel*.
- NACE MR0175:1992, *Sulfide stress cracking resistant metallic materials for oilfield equipment*.
- SNT-TC-1A:1988, *Personnel qualification and certification in nondestructive testing*.
- BS 2M 54:1991, *Specification for temperature control in the heat treatment of metals*.

### 3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply:

#### 3.1

##### **AQL**

acceptance quality level

#### 3.2

##### **bean**

the orifice or designed restriction causing the pressure drop in velocity-type SSSVs

#### 3.3

##### **chloride stress corrosion cracking**

cracking under the combined action of tensile stress and corrosion in the presence of chlorides and water

#### 3.4

##### **design acceptance criteria**

defined limits placed on characteristics of materials, products, or services, established by the manufacturer to ensure conformance to the product design

#### 3.5

##### **end connection**

SSSV equipment/tubular connecting interface

#### 3.6

##### **failure**

any condition of SSSV equipment that prevents it from performing the design function

#### 3.7

##### **fit**

the geometric relationship between parts

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NOTE This would include the tolerance criteria used during the design of a part and its mating parts, including seals adjusted to or shaped for their purpose.

#### 3.8

##### **form**

the essential shape of a product including all its component parts

#### 3.9

##### **function**

the operation of a product during service

#### 3.10

##### **functional test**

test performed to confirm proper operation of SSSV equipment

#### 3.11

##### **heat treatment**

##### **heat treating**

alternate steps of controlled heating and cooling of materials for the purpose of changing physical or mechanical properties

#### 3.12

##### **interchangeable**

conforming in every detail, within specified tolerances, to both fit and function of a safe design but not necessarily to the form