SLOVENSKI STANDARD
SIST EN ISO 28781:2012

01-november-2012

Industrija za predelavo nafte in zemeljskega plina - Vrtalna in proizvodna oprema - Podpovršinski zaporni ventili in pripadajoča oprema (ISO 28781:2010)

Petroleum and natural gas industries - Drilling and production equipment - Subsurface barrier valves and related equipment (ISO 28781:2010)

Erdöl- und Erdgasindustrie - Bohrlochausrüstung - Untertage-Formations-Absperrventile und Zubehör (ISO 28781:2010)

Industries du pétrole et du gaz naturel - Équipement de production et de forage - Vannes de barrage de subsurface et équipement associé (ISO 28781:2010)

Ta slovenski standard je istoveten z: **EN ISO 28781:2010**

ICS:

75.180.10	Oprema za raziskovanje in odkopavanje	Exploratory and extraction equipment

SIST EN ISO 28781:2012 **en,fr**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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August 2010

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English Version

Petroleum and natural gas industries - Drilling and production equipment - Subsurface barrier valves and related equipment (ISO 28781:2010)

Industries du pétrole et du gaz naturel - Équipement de production et de forage - Vannes de barrage de subsurface et équipement associé (ISO 28781:2010)

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COMITÉ EUROPÉEN DE NORMALISATION
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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN ISO 28781:2010) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" in collaboration with Technical Committee CEN/TC 12 “Materials, equipment and offshore structures for petroleum, petrochemical 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of an identical text or by endorsement, at the latest by February 2011, and conflicting national standards shall be withdrawn at the latest by February 2011.

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Endorsement notice

The text of ISO 28781:2010 has been approved by CEN as a EN ISO 28781:2010 without any modification.

INTERNATIONAL STANDARD

ISO 28781

First edition
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Petroleum and natural gas industries — Drilling and production equipment — Subsurface barrier valves and related equipment

Industries du pétrole et du gaz naturel — Équipement de production et de forage — Vannes de barrage de subsurface et équipement associé

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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.

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ISO 28781 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*.

Introduction

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

This International Standard has been structured with six different types of barrier valves. This differentiation is due to the range of product functionality, such as the direction in which pressure is held and its use in pre- or post-production/injection operations.

This International Standard has been structured with grades of increased requirements in quality control and design validation. These grades allow the user/purchaser to select the level of requirements that are required for a specific application.

There are two quality grades: quality grade Q2 is the minimum grade of quality offered by this International Standard and quality grade Q1 is the highest grade provided. Additional quality requirements can be specified by the user/purchaser as supplemental requirements.

There are three design validation grades, which provide the user/purchaser with a choice of requirements to meet their preference or application. Design validation grade V3 is the minimum grade and V1 is the most stringent grade provided.

Annexes B, C, D and E are normative requirements, where Annexes A, F, G and H are informative.

The International System of Units (SI) is used in this International Standard, however US Customary (USC) or other units are also shown for reference.

It is required that users of this International Standard be aware that requirements beyond those outlined in this International Standard can 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 can be particularly applicable where there is innovative or developing technology. Where an alternative is offered, it is the responsibility of the supplier/manufacturer to identify any variations from this International Standard and provide details.

Petroleum and natural gas industries — Drilling and production equipment — Subsurface barrier valves and related equipment

1 Scope

This International Standard provides the requirements for subsurface barrier valves and related equipment as they are defined herein for use in the petroleum and natural gas industries. Included are the requirements for design, design validation, manufacturing, functional evaluation, repair, redress, handling and storage. Subsurface barrier valves provide a means of isolating the formation or creating a barrier in the tubular to facilitate the performance of pre- and/or post-production/injection operational activities in the well.

The subsurface barrier valve is not designed as an emergency or fail-safe flow controlling safety device.

This International Standard does not cover installation and maintenance, control systems such as computer systems, and control conduits not integral to the barrier valve. Also not included are products covered under ISO 17078, ISO 16070, ISO 14310, ISO 10432, ISO 10423 and the following products: downhole chokes, wellhead plugs, sliding sleeves, casing-mounted flow-control valves, injection valves, well-condition-activated valves or drill-stem test tools. This International Standard does not cover the connections to the well conduit.

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 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 designation codes*

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

ISO 6506 (all parts), *Metallic materials — Brinell hardness test*

ISO 6508 (all parts), *Metallic materials — Rockwell hardness test*

ISO 9000, *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 — Part 1: Water-based fluids*

ISO 18265, *Metallic materials — Conversion of hardness values*

API Manual of Petroleum Measurement Standards, Chapter 10 — Sediment and Water — Section 4: 1999, *Determination of Sediment and Water in Crude Oil by the Centrifuge Method (Field Procedure)*[1)]

ASME *Boiler and Pressure Vessel Code* (BPVC), Section II, Materials Specification — *Part D: Properties*[2)]

ASME, *Boiler and Pressure Vessel Code* (BPVC) — Section VIII — Rules for Construction of Pressure Vessels — Division 1, UW-40: *Procedures for Post-weld Heat Treatment*

ASME, *Boiler and Pressure Vessel Code* (BPVC) — Section VIII: Division 1, Appendix 8: *Methods for Liquid Penetrant Examination (PT)*

ASME, *Boiler and Pressure Vessel Code* (BPVC) — Section IX: *Welding and Brazing Qualifications*

ASTM E165, *Standard Test Method for Liquid Penetrant Examination*

3 Terms and definitions

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

3.1
assembly (noun)
product comprised of more than one component

3.2
ambient temperature
prevailing temperature at test site

3.3
barrier
obstacle or impediment to flow and/or pressure

3.4
base design
design of a specified size, type and model of subsurface barrier valve that has passed the requirements of Annex B and meets the requirements of this International Standard

3.5
batch-lot-traceable
⟨material or components⟩ having undergone the same process or series of processes and being traceable to one batch of material

3.6
casing
pipe extending from the surface and intended to line the walls of a drilled well

3.7
casing-mounted flow-control valves
downhole valves permanently installed as a component of the casing or liner (pipe not extending from the surface and intended to line the walls of a drilled well)

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

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

3.8
city water
water that is provided by the local water utility system and is unprocessed thereafter

3.9
common hardware
non-critical nuts, bolts, set screws and spacers

3.10
design validation
process of proving a design by testing to demonstrate conformity of the product to design requirements

[ISO/TS 29001:2010, 3.1.7]

3.11
design verification
process of examining the result of a given design or development activity to determine conformity with specified requirements

[ISO/TS 29001:2010, 3.1.8]

NOTE Design verification includes activities such as design reviews, design calculations, physical tests, comparison with similar designs and historical records of defined operating conditions.

3.12
downhole choke

downhole device used to restrict flow rates through its ID and not intended to seal as a barrier

3.13
drift diameter
minimum ID of a subsurface barrier valve, expressed as the OD of the drift bar utilized during assembly verification

3.14
drill-stem test tools
downhole tools temporarily set in place for the purpose of evaluating the production potential of the chosen formation

3.15
end connection
subsurface-barrier-valve equipment/tubular connecting interface

3.16
environment
set of conditions to which a product is exposed

3.17
external means
signal or method used to actuate a barrier valve that is instigated by human intention

3.18
fit
geometric relationship between parts

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