SLOVENSKI STANDARD
SIST EN ISO 17824:2014

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Industrija za predelavo nafte in zemeljskega plina - Oprema za vrtine - Peščeni filter (ISO 17824:2009)

Petroleum and natural gas industries - Downhole equipment - Sand screens (ISO 17824:2009)

Erdöl- und Erdgasindustrie - Bohrlochausrüstungen - Sandfilter (ISO 17824:2009)

Industries du pétrole et du gaz naturel - Equipement de fond de puits - Tamis de contrôle de sable (ISO 17824:2009)

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ICS:

75.180.10	Oprema za raziskovanje in odkopavanje	Exploratory and extraction equipment

SIST EN ISO 17824:2014 **en**

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Petroleum and natural gas industries - Downhole equipment - Sand screens (ISO 17824:2009)

Industries du pétrole et du gaz naturel - Equipement de fond de puits - Tamis de contrôle de sable (ISO 17824:2009)

Erdöl- und Erdgasindustrie - Bohrlochausrüstungen - Sandfilter (ISO 17824:2009)

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Foreword

The text of ISO 17824:2009 has been prepared by Technical Committee ISO/TC 67 “Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 17824:2014 by 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of an identical text or by endorsement, at the latest by February 2015, and conflicting national standards shall be withdrawn at the latest by February 2015.

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Endorsement notice

The text of ISO 17824:2009 has been approved by CEN as EN ISO 17824:2014 without any modification.

INTERNATIONAL STANDARD

ISO 17824

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Petroleum and natural gas industries — Downhole equipment — Sand screens

Industries du pétrole et du gaz naturel — Equipement de fond de puits — Tamis de contrôle de sable

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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 17824 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 user/purchasers and supplier/manufacturers of sand control screens intended for use in petroleum and natural gas wells. This International Standard provides requirements and information to both parties regarding the manufacture, mechanical properties and testing of sand control screens. Further, this International Standard addresses supplier/manufacturer requirements that set the minimum parameters with which it is necessary that supplier/manufacturers comply to claim conformity with this International Standard.

This International Standard is structured with grades of increased requirements for both design validation and quality control. Three design validation grades (V1, V2 and V3) and three quality grades (Q1, Q2 and Q3) provide the user/purchaser the choice of requirements to meet a specific preference or application. Design validation grade V3 and quality grade Q3 represent equipment designed and manufactured consistent with minimum industry practice.

Included within this International Standard are normative annexes A and B specifying test methods for determining the collapse and burst strength of sand control screens. Informative annexes C, D, E, F, G and H include measurement criteria for sand control screen filter media, illustrations of the three types of sand control screens, and increased wire-wrap slot size inspection requirements.

It is necessary that users of this International Standard be aware that requirements above 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 — Downhole equipment — Sand screens

1 Scope

This International Standard provides the requirements and guidelines for sand control screens for use in the petroleum and natural gas industries. Included are the requirements for design, design validation, functional evaluation, manufacturing, storage and transport. The requirements of this International Standard are applicable to wire-wrap screens, pre-pack screens and metal-mesh screens as defined herein.

The following items are outside the scope of this International Standard:

— expandable sand screens, slotted liners or tubing and accessory items such as centralizers or bull plugs;

— shunt screen technology, inflow control devices, downhole sensors and selective isolation devices, even where they can be an integral part of the sand control screen;

— screen filtration performance criteria, including test methods or analysis for sand retention efficiency;

— end connections of the basepipe.

2 Normative references

The following referenced documents are indispensable for the application of this document. The way in which these referenced documents are cited determines the extent (in whole or part) to which they apply. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 10414-1:2008, *Petroleum and natural gas industries — Field testing of drilling fluids — Part 1: Water-based fluids*

ISO 11960, *Petroleum and natural gas industries — Steel pipes for use as casing or tubing for wells*

NOTE ISO 11960 has been back adopted by API as API SPEC 5CT. Therefore, for the purposes of the provisions of this International Standard which cite ISO 11960, API SPEC 5CT is equivalent to ISO 11960.

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

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

ASME, *Boiler and Pressure Vessel Code BPVC — Section II: Materials: Part D: Properties*

ASME, *Boiler and Pressure Vessel Code BPVC — Section VIII: 1998, Div. 1, Appendix 8: Methods for Liquid Penetrant Examination (PT)*

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

ASTM E11, *Standard Specification for Wire Cloth and Sieves for Testing Purposes*

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
annular gravel pack
sized sand or synthetic proppant placed in the annulus outside the sand control screen during gravel packing

3.2
basepipe
tubulars that have perforations or slots to allow fluid flow through the screen jacket

NOTE See Figures E.1, F.1 and G.1.

3.3
box handling length
axial length of blank basepipe on a sand control screen, measured between the end of the box connection and the nearest component along the basepipe

NOTE See Figures D.4 and D.5.

3.4
center break
axial length of blank pipe between two screen jackets on a sand control screen

NOTE See Figure D.5.

3.5
component
individual part of an assembly

3.6
design family
group of sand control screens wherein the configuration, materials, and functionality are the same and the design stress levels in relation to material mechanical properties are based on the same criteria

3.7
design validation
process of proving a design by testing to demonstrate conformity of the product to design requirements

[ISO/TS 29001]

3.8
design verification
process of examining the result of a given design or development activity to determine conformity with specified requirements

[ISO/TS 29001]

3.9
direct-wrap screen
sand screen in which the screen jacket rib wires are in direct contact with the base pipe along the axial length

NOTE See Annexes E and F.

3.10
direct-wrap pre-pack screen
pre-pack screen in which the inner screen, which may be wire-wrap or metal-mesh, is a direct-wrap screen

NOTE See Annex F.

3.11
downhole sensor
device incorporated into the sand control screen to measure various downhole conditions

3.12
drainage or support layer
component used in metal-mesh screens to provide structural support and/or to facilitate flow between the basepipe perforations and metal mesh

NOTE See Figure G.1.

3.13
drift OD
minimum ID of the drift tool utilized to verify screen assembly OD clearance

3.14
end ring
component used to seal the annular gap between the ends of the screen jacket and basepipe

3.15
filter media OD
⟨metal-mesh screens⟩ metal-mesh OD
⟨wire-wrap screens⟩ wrap-wire OD
⟨pre-pack screens⟩ outermost wrap-wire OD

NOTE See Figures D.1, D.2 and D.3.

3.16
fluid-loss control pill
fluid with a concentration of a wide array of sized particles that forms a filter cake that seals off a screen surface with little or no leak-off through the screen's slot openings or pores

3.17
gravel packing
well completion method used for the purpose of excluding formation sand from entering the well bore and including a sand control screen, sized sand or synthetic proppant

3.18
inflow control device
device incorporated into a sand control screen that regulates the flow into or along the basepipe

3.19
informative
information that is meant to enlighten the user/purchaser or supplier/manufacturer, without containing requirements

3.20
job-lot traceable
ability for parts to be identified as originating from a job lot which identifies the included heat(s)

3.21
joint overall length
maximum axial length of the screen measured from the outer end of the box connection to the end of the pin thread on the basepipe

NOTE See Figures D.4 and D.5.