Irish Standard
I.S. EN ISO 11960:2014

Petroleum and natural gas industries - Steel pipes for use as casing or tubing for wells (ISO 11960:2014)

I.S. EN ISO 11960:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

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This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

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Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

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EUROPÄISCHE NORM

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English Version

Petroleum and natural gas industries - Steel pipes for use as casing or tubing for wells (ISO 11960:2014)

Industries du pétrole et du gaz naturel - Tubes d'acier utilisés comme cuvelage ou tubes de production dans les puits (ISO 11960:2014)

Erdöl- und Erdgasindustrie - Stahlrohre zur Verwendung als Futter- oder Steigrohre für Bohrungen (ISO 11960:2014)

This European Standard was approved by CEN on 2 January 2014.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 11960:2014) 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of an identical text or by endorsement, at the latest by July 2014, and conflicting national standards shall be withdrawn at the latest by July 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 11960:2011.

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

Endorsement notice

The text of ISO 11960:2014 has been approved by CEN as EN ISO 11960:2014 without any modification.

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I.S. EN ISO 11960:2014

INTERNATIONAL STANDARD

ISO 11960

Fifth edition
2014-01-15

Petroleum and natural gas industries — Steel pipes for use as casing or tubing for wells

Industries du pétrole et du gaz naturel — Tubes d'acier utilisés comme cuvelage ou tubes de production dans les puits

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 67, *Materials, equipment and offshore structures for petroleum and petrochemical and natural gas industries*, Subcommittee SC 5, *Casing, tubing and drill pipe*.

This fifth edition cancels and replaces the fourth edition (ISO 11960:2011).

It is the intention of ISO/TC 67 that either this edition or the previous edition of ISO 11960 be applicable, at the option of the purchaser (as defined in 4.1.39), for a period of six months from the first day of the calendar quarter immediately following the date of publication of this edition, after which period the previous edition will no longer be applicable.

Introduction

This International Standard is based on API Spec 5CT.

Users of this International Standard are advised that further or differing requirements can 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 can be particularly applicable where there is innovative or developing technology. Where an alternative is offered, it is advisable that the vendor identify any variations from this International Standard and provide details.

This International Standard includes requirements of various nature. These are identified by the use of certain verbal forms:

— SHALL is used to indicate that a provision is MANDATORY;

— SHOULD is used to indicate that a provision is not mandatory, but RECOMMENDED as good practice;

— MAY is used to indicate that a provision is OPTIONAL.

Details of the major changes (additions, modifications and deletions) agreed by the committee, and which affect the performance of the products or the technical requirements applicable to the products, are provided for information in Annex L and are indicated in this International Standard by the use of grey shading for changes in the fourth edition and yellow shading for changes in this edition. Shading is also used to indicate editorial changes. Where deletions, but no other changes, have been made, vertical bars are used in the margin adjacent to the applicable line or at each side of a cell in a table. Where a complete line or paragraph has been deleted, margin bars next to a blank line are used. While efforts have been made to ensure the accuracy of the changes indicated, the user of this International Standard is advised to consider the total technical content and not only the changes identified. *The user is ultimately responsible for recognising any differences between this edition and the previous edition of this International Standard. ISO expressly disclaims any liability or responsibility for loss or damage resulting from inappropriate use of this International Standard on the basis of any inaccuracy in the changes identified.*

Petroleum and natural gas industries — Steel pipes for use as casing or tubing for wells

1 Scope

1.1 This International Standard specifies the technical delivery conditions for steel pipes (casing, tubing and pup joints), coupling stock, coupling material and accessory material and establishes requirements for three Product Specification Levels (PSL-1, PSL-2, PSL-3). The requirements for PSL-1 are the basis of this International Standard. The requirements that define different levels of standard technical requirements for PSL-2 and PSL-3, for all Grades except H-40, L-80 9Cr and C110, are contained in Annex H.

For pipes covered by this International Standard, the sizes, masses and wall thicknesses, as well as, grades and applicable end-finishes are listed in Tables C.1 and C.2 and Tables E.1 and E.2.

By agreement between the purchaser and manufacturer, this International Standard can also be applied to other plain-end pipe sizes and wall thicknesses.

This International Standard is applicable to the following connections in accordance with API Spec 5B:

— short round thread casing (SC);

— long round thread casing (LC);

— buttress thread casing (BC);

— non-upset tubing (NU);

— external upset tubing (EU);

— integral tubing (IJ).

For such connections, this International Standard specifies the technical delivery conditions for couplings and thread protection. Supplementary requirements that can optionally be agreed for enhanced leak resistance connections (LC) are given in A.11 SR22.

This International Standard can also be applied to tubulars with connections not covered by ISO/API standards.

1.2 The four groups of products to which this International Standard is applicable include the following grades of pipe:

— Group 1: All casing and tubing in Grades H, J, K, N and R;

— Group 2: All casing and tubing in Grades C, L, M and T;

— Group 3: All casing and tubing in Grade P;

— Group 4: All casing in Grade Q.

1.3 Casing sizes larger than Label 1: 4-1/2 but smaller than Label 1: 10-3/4 can be specified by the purchaser to be used in tubing service, see Tables C.1, C.23, C.27 and C.28 or Tables E.1, E.23, E.27 and E.28.

1.4 Supplementary requirements that can optionally be agreed between purchaser and manufacturer for non-destructive examination, fully machined coupling blanks, upset casing, electric-welded casing, tubing and pup joints, impact testing, seal ring couplings, test certificates, tensile testing and sulfide stress cracking testing are given in Annex A.

1.5 This International Standard is not applicable to threading requirements.

NOTE Dimensional requirements on threads and thread gauges, stipulations on gauging practice, gauge specifications, as well as, instruments and methods for inspection of threads are given in API Spec 5B.

2 Conformance

2.1 Dual referencing of normative references

In the interests of world-wide application of this International Standard, ISO/TC 67 has decided, after detailed technical analysis, that certain normative documents listed in Clause 3 and prepared by ISO/TC 67 or other ISO Technical Committee are interchangeable in the context of the relevant requirement with the relevant document prepared by the American Petroleum Institute (API), the American Society for Testing and Materials (ASTM) or the American National Standards Institute (ANSI). These latter documents are cited in the running text following the ISO reference and preceded by “or”, for example “ISO XXXX or API YYYY”. Application of an alternative normative document cited in this manner will lead to technical results different from the use of the preceding ISO reference. However, both results are acceptable and these documents are thus considered interchangeable in practice.

2.2 Units of measurement

In this International Standard, data are expressed in both the International System (SI) of units and the United States Customary (USC) system of units. For a specific order item, it is intended that only one system of units be used, without combining data expressed in the other system.

Products manufactured to specifications expressed in either of these unit systems shall be considered equivalent and totally interchangeable. Consequently, compliance with the requirements of this International Standard as expressed in one system provides compliance with requirements expressed in the other system.

For data expressed in the SI, a comma is used as the decimal separator and a space as the thousands separator. For data expressed in the USC system, a dot (on the line) is used as the decimal separator and a space as the thousands separator.

In the text, data in SI units are followed by data in USC units in parentheses.

Separate tables for data expressed in SI units and USC units are given in Annex C and Annex E respectively.

Figures are contained in Annex D and express data in both SI and USC units.

3 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 80000-1, *Quantities and units — Part 1: General*