Petroleum and natural gas industries - Steel pipe for pipeline transportation systems (ISO 3183:2019)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 3183:2019 sisaldab Euroopa standardi EN ISO 3183:2019 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 3183:2019 consists of the English text of the European standard EN ISO 3183:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.10.2019.	Date of Availability of the European standard is 23.10.2019.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 75.200, 77.140.75

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 3183

October 2019

ICS 75.200; 77.140.75

Supersedes EN ISO 3183:2012

English Version

Petroleum and natural gas industries - Steel pipe for pipeline transportation systems (ISO 3183:2019)

Industries du pétrole et du gaz naturel - Tubes en acier pour les systèmes de transport par conduites (ISO 3183:2019)

Erdöl- und Erdgasindustrie - Stahlrohre für Rohrleitungstransportsysteme (ISO 3183:2019)

This European Standard was approved by CEN on 19 February 2019.

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

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN ISO 3183:2019 E

European foreword

This document (EN ISO 3183:2019) 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 459/SC 10 “Steel tubes, and iron and steel fittings” the secretariat of which is held by UNI.

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 April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

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

This document supersedes EN ISO 3183:2012.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 3183:2019 has been approved by CEN as EN ISO 3183:2019 without any modification.

Contents

Page

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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 2, *Pipeline transportation systems*.

This fourth edition cancels and replaces the third edition (ISO 3183:2012), which has been technically revised. It also incorporates the Amendment (ISO 3183:2012/Amd.1:2017).

This document supplements API Spec 5L, 46th edition (2018).

The technical requirements of this document and API Spec 5L used to be identical (except for the inclusion of Annex M in the ISO publication). In the meantime API Spec 5L has been technically revised as API Spec 5L, 46th edition (2018). The purpose of this document is to bring it up to date, by referencing the current edition of API Spec 5L and including supplementary content.

The main changes compared to the previous edition are as follows:

— Technical changes now incorporated by normative reference to API Spec 5L have been made in the API Spec 5L subclauses addressing

  — weld seams (API Spec 5L, 8.8.2 clarifies heat treatment),

  — tolerances for straightness (API Spec 5L, 9.11.3.4b and J.6.4 pipe end tolerances tightened),

  — end squareness (API Spec 5L, 9.12.6 defined in detail),

  — impact test pieces (API Spec 5L, Table 22 test piece size table corrected),

  — location of hardness tests (API Spec 5L, Figures H.1 and J.1 weld centre line for HFW detailed),

  — welded jointers (API Spec 5L, Annex M fit up and geometry, marking & NDT addressed),

  — a new annex N has been added for PSL 2 pipe ordered for applications requiring longitudinal plastic strain capacity, and

— changes on order of annexes.

— Annex M of the previous edition of this document, i.e. ISO 3183:2012/Amd 1:2017, for PSL 2 pipe ordered for European onshore natural gas transmission pipelines, is now provided as Annex A.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document was originally developed by harmonizing the requirements of API Spec 5L, 44th edition (2007) and the second edition of this document, i.e. ISO 3183:2007. This continued to be the case for the third edition of this document, i.e. ISO 3183:2012 and API Spec 5L, 45th edition (2012), in which clarification and additional technical requirements were added.

Petroleum and natural gas industries — Steel pipe for pipeline transportation systems

1 Scope

This document specifies requirements for the manufacture of two product specification levels (PSL 1 and PSL 2) of seamless and welded steel pipes for use in pipeline transportation systems in the petroleum and natural gas industries.

This document supplements API Spec 5L, 46th edition (2018), the requirements of which are applicable with the exceptions specified in this document.

This document is not applicable to cast pipe.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 148-1, *Metallic materials — Charpy pendulum impact test — Part 1: Test method*

ISO 2566-1, *Steel — Conversion of elongation values — Part 1: Carbon and low alloy steels*

ISO 5173, *Destructive tests on welds in metallic materials — Bend tests*

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

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

ISO 10893-2:2011, *Non-destructive testing of steel tubes — Part 2: Automated eddy current testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of imperfections*

ISO 10893-3:2011, *Non-destructive testing of steel tubes — Part 3: Automated full peripheral flux leakage testing of seamless and welded (except submerged arc-welded) ferromagnetic steel tubes for the detection of longitudinal and/or transverse imperfections*

ISO 10893-6:2019, *Non-destructive testing of steel tubes — Part 6: Radiographic testing of the weld seam of welded steel tubes for the detection of imperfections*

ISO 10893-7:2019, *Non-destructive testing of steel tubes — Part 7: Digital radiographic testing of the weld seam of welded steel tubes for the detection of imperfections*

ISO 10893-8:2011, *Non-destructive testing of steel tubes — Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections*

ISO 10893-9:2011, *Non-destructive testing of steel tubes — Part 9: Automated ultrasonic testing for the detection of laminar imperfections in strip/plate used for the manufacture of welded steel tubes*

ISO 10893-10:2011, *Non-destructive testing of steel tubes — Part 10: Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections*

ISO 10893-11:2011, *Non-destructive testing of steel tubes — Part 11: Automated ultrasonic testing of the weld seam of welded steel tubes for the detection of longitudinal and/or transverse imperfections*

ISO 11484, *Steel products — Employer's qualification system for non-destructive testing (NDT) personnel*

ISO 19232-1, *Non-destructive testing — Image quality of radiographs — Part 1: Determination of the image quality value using wire-type image quality indicators*

EN 10204, *Metallic products — Types of inspection documents*

EN 10168, *Steel products — Inspection documents — List of information and description*

API Spec 5L, 46th edition (2018), *Specification for Line Pipe*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in API Spec 5L, 46th edition (2018) apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Supplements to API Spec 5L, 46th edition (2018)

4.1 General requirements

The requirements specified in API Spec 5L, 46th edition (2018) shall apply, with the supplements and exceptions specified in 4.2 to 4.4.

Pipe manufactured in accordance with this document can be named "ISO 3183 pipe" and may be marked in accordance with 4.4.2. If no exceptions to API Spec 5L are taken and the pipe therefore conforms to both standards, the pipe can be named "API 5L pipe" and may be marked in accordance with 4.4.3.

4.2 PSL 2 pipe for European onshore natural gas transmission pipelines

Annex A shall be applied for PSL 2 pipe ordered for European onshore natural gas transmission pipelines.

4.3 Information to be supplied by the purchaser

In addition to the requirements of API Spec 5L, 46th edition (2018), Clause 7, the purchase order for pipe manufactured according to this document shall also include the following information:

a) confirmation if Annex A of this document, i.e. ISO 3183:2019, is applicable;

b) marking requirements according to 4.4.

4.4 Marking

4.4.1 General

The requirements specified in API Spec 5L, 46th edition (2018) shall apply together with the exceptions specified in 4.4.2 to 4.4.3.

This document describes two marking options (see 4.4.2 and 4.4.3). Additional markings, as desired by the manufacturer or as specified in the purchase order, may be applied, provided that they do not interrupt the sequence of the required markings per 4.4.2 or 4.4.3. If additional markings are used, these markings shall be located after the end of the required marking sequence or as a separate marking at some other location on the pipe.