

**Petroleum and natural gas industries -
Induction bends, fittings and flanges for
pipeline transportation systems - Part 2:
Fittings**

Petroleum and natural gas industries - Induction
bends, fittings and flanges for pipeline transportation
systems - Part 2: Fittings

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14870-2:2005 sisaldab Euroopa standardi EN 14870-2:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 22.02.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14870-2:2005 consists of the English text of the European standard EN 14870-2:2004.</p> <p>This document is endorsed on 22.02.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This document specifies the technical delivery conditions for unalloyed or low-alloy steel seamless and welded pipeline fittings for use in pipeline transportation systems for the petroleum and natural gas industries as defined in EN 14161.</p>	<p>Scope: This document specifies the technical delivery conditions for unalloyed or low-alloy steel seamless and welded pipeline fittings for use in pipeline transportation systems for the petroleum and natural gas industries as defined in EN 14161.</p>
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ICS 23.040.40, 75.200

Võtmesõnad:

ICS 23.040.40; 75.200

English version

Petroleum and natural gas industries - Induction bends, fittings
and flanges for pipeline transportation systems - Part 2: Fittings
(ISO 15590-2:2003 modified)

Industries du pétrole et du gaz naturel - Coudes d'induction,
raccords et brides pour systèmes de transport par
conduites - Partie 2 : Raccords (ISO 15590-2:2003
modifiée)

Erdöl- und Erdgasindustrie - Im Induktionsverfahren
hergestellte Rohrbögen, Fittings und Flansche für
Rohrleitungstransportsysteme - Teil 2: Fittings (ISO 15590-
2:2003 modifiziert)

This European Standard was approved by CEN on 30 September 2004.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Explanatory Note

ISO 15590-2:2003, developed within ISO/TC 67 SC 2, has been taken over as a European Standard EN 14870-2 (ISO 15590-2:2003 modified).

The scope of ISO/TC 67/SC 2 is pipeline transportation systems for the petroleum and natural gas industries without exclusions. However in CEN, the scopes of CEN/TC 12 and CEN/TC 234 overlapped until 1995. This scope overlap caused problems for the parallel procedure for the above-mentioned items. The conflict in scope was resolved when both the CEN/Technical Committees and the CEN/BT took the following resolution:

Resolution BT 38/1995:

Subject: Revised scope of CEN/TC 12

“BT endorses the conclusions of the coordination meeting between CEN/TC 12 “Materials, equipment and offshore structures for petroleum and natural gas industries” and CEN/TC 234 “Gas supply” and modifies the CEN/TC 12 scope, to read:

“Standardization of the materials, equipment and offshore structures used in drilling, production, refining and the transport by pipelines of petroleum and natural gas, excluding on-land supply systems used by the gas supply industry and those aspects of offshore structures covered by IMO requirement (ISO/TC 8).

The standardization is to be achieved wherever possible by the adoption of ISO Standards.”

Resulting from Resolution BT 38/1995, "**gas supply on land**" has been excluded from the scope of ISO 15590-2:2003 for the European adoption by CEN/TC 12.

Equivalence with European Standards is provided in Annex ZA.

Foreword

The text of ISO 15590-2:2003 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 14870-2:2004 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 June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

This document includes a Bibliography.

International Standard ISO 15590-2 was prepared by Technical Committee ISO/TC 67, Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries, Subcommittee SC2, Pipeline transportation systems.

EN 14870 consists of the following parts, under the general title *Petroleum and natural gas industries — Induction bends, fittings and flanges for pipeline transportation systems*:

— *Part 1: Induction bends (ISO 15590-1:2001 modified)*

— *Part 2: Fittings (ISO 15590-2:2003 modified)*

The following part is under preparation:

— *Part 3: Flanges*

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

Introduction

Users of this document should be aware that further or differing requirements may be needed for individual applications. This document is not intended to inhibit a manufacturer 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, the manufacturer should identify any variations from this document and provide details.

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1 Scope

This document specifies the technical delivery conditions for unalloyed or low-alloy steel seamless and welded pipeline fittings for use in pipeline transportation systems for the petroleum and natural gas industries as defined in EN 14161.

This document is applicable to welding-end fittings such as elbows, caps, tees, single or multiple extruded headers, reducers, and transition sections made from seamless and welded pipe of unalloyed or low-alloy steels.

This document specifies three classes of fitting corresponding to increasing quality requirements in accordance with the technical delivery conditions of ISO 3183 for pipe as indicated in Table 1.

Table 1 — Fitting class and corresponding pipe standard

Fitting class	Corresponding pipe standard
Class A	ISO 3183-1
Class B	ISO 3183-2
Class C	ISO 3183-3

This document is not applicable to the selection of the fitting class.

This document is not applicable to the materials for, or the attachment of, factory-welded extensions.

On-land supply systems used by the gas supply industry are excluded from the scope of this document.

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.

EN 287-1, *Qualification test of welders — Fusion welding — Part 1: Steels*.

EN 14161, *Petroleum and natural gas industries - Pipeline transportation systems (ISO 13623:2000 modified)*.

EN ISO 377:1997, *Steel and steel products - Location and preparation of samples and test pieces for mechanical testing (ISO 377:1997)*.

EN ISO 2566-1, *Steel - Conversion of elongation values - Part 1: Carbon and low alloy steels (ISO 2566-1:1984)*.

EN ISO 6507-1, *Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1:1997)*.

EN ISO 7438, *Metallic materials - Bend test (ISO 7438:1985)*.

EN ISO 15156-2:2003, *Petroleum, petrochemical and natural gas industries - Materials for use in H₂S-containing environments in oil and gas production - Part 2: Cracking-resistant carbon and low alloy steels, and the use of cast irons (ISO 15156-2:2003)*.

EN ISO 15614-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2004)*.

ISO 148, *Steel — Charpy impact test (V-notch)*.

ISO 148-2, *Metallic materials — Charpy pendulum impact test — Part 2: Verification of test machines*.

ISO 148-3, *Metallic materials — Charpy pendulum impact test — Part 3: Preparation and characterization of Charpy V reference test pieces for verification of test machines.*

ISO 783, *Metallic materials — Tensile testing at elevated temperature.*

ISO 3183-1, *Petroleum and natural gas industries — Steel pipe for pipelines — Technical delivery conditions — Part 1: Pipes of requirement class A.*

ISO 3183-2, *Petroleum and natural gas industries — Steel pipe for pipelines — Technical delivery conditions — Part 2: Pipes of requirement class B.*

ISO 3183-3, *Petroleum and natural gas industries — Steel pipe for pipelines — Technical delivery conditions — Part 3: Pipes of requirement class C.*

ISO 3834-2, *Quality requirements for welding — Fusion welding of metallic materials — Part 2: Comprehensive quality requirements.*

ISO 4885:1996, *Ferrous products — Heat treatments — Vocabulary.*

ISO 6892, *Metallic materials — Tensile testing at ambient temperature.*

ISO/TR 7705:1991, *Guidelines for specifying Charpy V-notch impact prescriptions in steel specifications.*

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

ISO 10474, *Steel and steel products — Inspection documents.*

ISO 11496, *Seamless and welded steel tubes for pressure purposes — Ultrasonic testing of tube ends for the detection of laminar imperfections.*

ISO 12095, *Seamless and welded steel tubes for pressure purposes — Liquid penetrant testing.*

ISO 12096, *Submerged arc-welded steel tubes for pressure purposes — Radiographic testing of the weld seam for the detection of imperfections.*

ISO 13664, *Seamless and welded steel tubes for pressure purposes — Magnetic particle inspection of the tube ends for the detection of laminar imperfections.*

ASME¹⁾ B16.9, *Factory-made wrought butt welding fittings.*

ASME B31.8, *Gas transmission and distribution piping systems.*

ASME IX, *Boiler and pressure vessel code, Section IX — Welding and brazing procedures, welders, brazers, and welding and brazing operators.*

ASTM²⁾ E 112, *Standard test methods for determining average grain size.*

ASTM E 709, *Standard guide for magnetic particle examination.*

MSS³⁾ SP-75, *Specification for high test wrought butt welding fittings.*

1) American Society of Mechanical Engineers, 345 East 47th Street, NY 10017-2392, USA.

2) American Society for Testing and Materials, 100 Bar Harbor Drive, West Conshohocken, PA 19428-2959, USA.

3) Manufacturers Standardization Society of the Valve & Fittings Industry, 127 Park Street, N.E., Vienna, Virginia 22180, USA.