

**Petroleum and natural gas industries -
Induction bends, fittings and flanges for
pipeline transportation systems - Part 3:
Flanges**

Petroleum and natural gas industries - Induction
bends, fittings and flanges for pipeline transportation
systems - Part 3: Flanges

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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| <p>Käesolev Eesti standard EVS-EN 14870-3:2006 sisaldab Euroopa standardi EN 14870-3:2006 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 30.03.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN 14870-3:2006 consists of the English text of the European standard EN 14870-3:2006.</p> <p>This document is endorsed on 30.03.2006 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 part of EN 14870 applies to weldneck and blind flanges (full face, raised face, and RTJ groove) as well as anchor, swivel-ring flanges and orifice flanges. This part of EN 14870 specifies the technical requirements for carbon steel and low-alloy steel forged flanges for use in pipeline transportation systems for the petroleum and natural gas industries as defined in ISO 13623.</p> | <p>Scope: This part of EN 14870 applies to weldneck and blind flanges (full face, raised face, and RTJ groove) as well as anchor, swivel-ring flanges and orifice flanges. This part of EN 14870 specifies the technical requirements for carbon steel and low-alloy steel forged flanges for use in pipeline transportation systems for the petroleum and natural gas industries as defined in ISO 13623.</p> |
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ICS 23.040.60, 75.200

Võtmesõnad:

ICS 23.040.60; 75.200

English Version

Petroleum and natural gas industries - Induction bends, fittings
and flanges for pipeline transportation systems - Part 3: Flanges
(ISO 15590-3:2004, modified)

Industries du pétrole et du gaz naturel - Coudes d'induction,
raccords et brides pour systèmes de transport par
conduites - Partie 3 : Brides (ISO 15590-3:2004, modifié)

Erdöl- und Erdgasindustrie - Im Induktionsverfahren
gefertigte Rohrbögen, Fittings und Flansche für
Rohrleitungs-Transportsysteme - Teil 3: Flansche (ISO
15590-3:2004, modifiziert)

This European Standard was approved by CEN on 5 January 2006.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Explanatory note

ISO 15590-3:2004, developed within ISO/TC 67 SC 2, has been taken over as a European Standard EN 14870-3 (ISO 15590-3:2004, 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 15590-3:2004 for the European adoption by CEN/TC 12.

Foreword

This European Standard (EN 14870-3:2006) has been prepared 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 August 2006, and conflicting national standards shall be withdrawn at the latest by August 2006.

The text of ISO 15590-3 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 2, *Pipeline transportation systems*.

With respect to ISO 15590-3 the scope of this European Standard excludes on-land supply systems used by the gas supply industry.

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

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)*
- *Part 3: Flanges (ISO 15590-3:2004 modified)*

The ISO standards listed in Clause 2 "Normative references" correspond to the following European Standards:

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| ISO 377 | Steel and steel products — Location and preparation of samples and test pieces for mechanical testing | EN ISO 377 |
| ISO 2566-1 | Steel — Conversion of elongation values — Part 1: Carbon and low alloy steels | EN ISO 2566-1 |
| ISO 6507-1 | Metallic materials — Vickers hardness test — Part 1: Test method | EN ISO 6507-1 |
| ISO 13623 | Petroleum and natural gas industries — Pipeline transportation systems | EN 14161 (ISO 13623:2000, modified) |
| ISO 15156-2:2003 | Petroleum, petrochemical and natural gas industries — Materials for use in H ₂ S-containing environments in oil and gas production — Part 2: Cracking-resistant carbon and low alloy steels, and the use of cast iron | EN ISO 15156-2:2003 |

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Introduction

Users of this part of EN 14870 should be aware that further or differing requirements may be needed for individual applications. This part of EN 14870 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 part of EN 14870 and provide details.

1 Scope

This part of EN 14870 applies to weldneck and blind flanges (full face, raised face, and RTJ groove) as well as anchor, swivel-ring flanges and orifice flanges.

This part of EN 14870 specifies the technical requirements for carbon steel and low-alloy steel forged flanges for use in pipeline transportation systems for the petroleum and natural gas industries as defined in ISO 13623.

This part of EN 14870 designates those categories of flanges that meet the industry's need to match ISO 3183 pipe. These flanges are for normal and low-temperature service and include supplementary requirements where required for sour service.

Materials for, or the attachment of, factory-welded extensions, bolting materials, gaskets, slip-on flanges or flanged fittings are not covered by this part of EN 14870.

This part of EN 14870 is not applicable to integrally cast or forged flanges for valves, pumps or other equipment.

This part of EN 14870 does not cover the selection of the flange category or pressure class. Sizes and pressure classes listed in ISO 7005-1 and applicable to this part of EN 14870 are as follows:

- DN 10 (NPS 1/2) to DN 1500 (NPS 60);
- PN 20 (class 150), PN 50 (class 300), PN 100 (class 600), PN 150 (class 900), PN 250 (class 1500), PN 420 (class 2500).

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.

ISO 148-1, *Metallic material — Charpy pendulum impact test — Part 1: Test method*

ISO 377, *Steel and steel products — Location and preparation of samples and test pieces for mechanical testing*

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

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

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 4885, *Ferrous products — Heat treatments — Vocabulary*

ISO 6507-1:1997, *Metallic materials — Vickers hardness test — Part 1: Test method*

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

ISO 7005-1:1992, *Metallic flanges — Part 1: Steel flanges*

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

ISO 9327-1, *Steel forgings and rolled or forged bars for pressure purposes — Technical delivery conditions — Part 1: General requirements*

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

ISO 10474:1991, *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 13623, *Petroleum and natural gas industries — Pipeline transportation systems*

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

ISO 13665, *Seamless and welded steel tubes for pressure purposes — Magnetic particle inspection of the tube body for the detection of surface imperfections*

ISO 15156-2:2003, *Petroleum 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*

EN 14870-1:2004, *Petroleum and natural gas industries — Induction bends, fittings and flanges for pipeline transportation systems — Part 1: Induction bends (ISO 15590-1:2001 modified)*

EN 14870-2, *Petroleum and natural gas industries — Induction bends, fittings and flanges for pipeline transportation systems — Part 2: Fittings (ISO 15590-2:2003 modified)*

ASME Boiler and Pressure Vessel Code; Section VIII Division 1, *Rules for Construction of Pressure Vessels*

ASME B16.5, *Pipe Flanges and Flanged Fittings — NPS 1/2 through 24*

ASME B16.36¹⁾, *Orifice Flanges*

ASME B16.47, *Large Diameter Steel Flange — NPS 26 through NPS 60*

ASME B31.3, *Process piping*

ASTM A 370-03a¹⁾, *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*

ASTM E 112-96e3, *Standard Test Methods for Determining Average Grain Size*

MSS SP 44²⁾, *1996 Steel Pipeline Flanges*

¹⁾ American Society for Testing and Materials, 100 Bar Harbor Drive, West Conshohocken, PA 19428-2959, USA

²⁾ Manufacturer's Standardization Society of the Valve and Fittings Industry, 127 Park Street, N.E., Vienna, Virginia 22180, USA