

# SVENSK STANDARD

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### **Petroleum and natural gas industries – Induction bends, fittings and flanges for pipeline transportation systems – Part 1: Induction bends (ISO 15590-1:2009 modified)**

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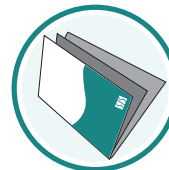
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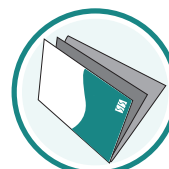
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Europastandarden EN 14870-1:2011 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 14870-1:2011.

Denna standard ersätter SS-EN 14870-1:2006, utgåva 1.

The European Standard EN 14870-1:2011 has the status of a Swedish Standard. This document contains the official version of EN 14870-1:2011.

This standard supersedes the Swedish Standard SS-EN 14870-1:2006, edition 1.

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EUROPEAN STANDARD

**EN 14870-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2011

ICS 23.040.40; 23.040.60; 75.200

Supersedes EN 14870-1:2004

English Version

**Petroleum and natural gas industries - Induction bends, fittings  
and flanges for pipeline transportation systems - Part 1:  
Induction bends (ISO 15590-1:2009 modified)**

Industries du pétrole et du gaz naturel - Coudes d'induction,  
raccords et brides pour systèmes de transport par  
conduites - Partie 1: Coudes d'induction (ISO 15590-1:2009  
modifiée)

Erdöl- und Erdgasindustrie - Im Induktionsverfahren  
gefertigte Rohrbögen, Fittings und Flansche für  
Rohrleitungs-Transportsysteme - Teil 1: Im  
Induktionsverfahren gefertigte Rohrbögen

This European Standard was approved by CEN on 10 June 2011.

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.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN 14870-1:2011) 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 December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

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 14870-1:2004.

The text of ISO 15590-1:2009 has been adopted by CEN/TC 12 with some modifications. These modifications are indicated by a vertical line in the left margin of the text. Where the expression “International Standard” is used, it is understood as “European Standard”.

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



## Introduction

This International Standard makes reference to line pipe and bends with delivery conditions based on ISO 3183. Following significant revision of ISO 3183 (ISO 3183:2007), ISO 15590-1 has been reviewed and redrafted taking cognizance of the changes to ISO 3183. In addition to general revision, and in common with ISO 3183:2007, the Technical Committee has introduced additional requirements for special applications as follows:

- Manufacturing procedure specification (Annex A);
- PSL 2 bends for sour service (Annex B).

The requirements of the annexe(s) apply only when it is (they are) specified on the purchase order.

This International Standard does not provide guidance on when it is necessary to specify the above supplementary requirements. Instead it is the responsibility of the purchaser to specify, based upon the intended use and design requirements, which, if any, of the supplementary requirements apply for a particular purchase order.

Users of ISO 15590 need to be aware that further or differing requirements can be needed for individual applications. This part of ISO 15590 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, it is the responsibility of the manufacturer to identify any variations from this part of ISO 15590 and provide details.

ISO 15590 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;*
- *Part 2: Fittings;*
- *Part 3: Flanges.*

ISO 15590-1:2009, developed within ISO/TC 67/SC2, has been adopted as EN 14870-1:2011 (ISO 15590-1:2009 modified).

The scope of ISO/TC 67/SC2 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.”*

In 2009, CEN/TC 12 changed its scope to be in coherency with the last CEN/TC 234's scope changes, as follows (resolution CEN/BTC 19/2009):

*Standardisation of the materials, equipment and offshore structures used in the drilling, production, transport by pipelines and processing of liquid and gaseous hydrocarbons within the petroleum, petrochemical and natural gas industries, excluding on-land supply systems used by the gas supply industry excluding gas infrastructure from the input of gas into the on-shore transmission network up to the inlet connection of gas appliances. (covered by CEN/TC 234) and those aspects of offshore structures covered by IMO requirements (ISO/TC 8).*

*The standardisation is to be achieved wherever possible by the adoption of ISO standards.*

Resulting from these resolutions, "on-land supply systems used by the gas supply industry excluding gas infrastructure from the input of gas into the on-shore transmission network up to the inlet connection of gas appliances" has been excluded from the scope of ISO 15590-1:2009 for the European adoption by CEN/TC 12.

## 1 Scope

This International Standard specifies the technical delivery conditions for bends made by the induction bending process for use in pipeline transportation systems for the petroleum and natural gas industries as defined in ISO 13623.

This International Standard is applicable to induction bends made from seamless and welded pipe of unalloyed or low-alloy steels.

NOTE These are typically C-Mn steels or low-alloy steels that are appropriate for the corresponding level and grade of line pipe in accordance with ISO 3183.

This International Standard specifies the requirements for the manufacture of two product specification levels (PSLs) of induction bend corresponding to product specification levels given for pipe in ISO 3183.

This International Standard is not applicable to the selection of the induction bend product specification level. It is the responsibility of the purchaser to specify the PSL, based upon the intended use and design requirements; see also ISO 3183:2007, Introduction.

This International Standard is not applicable to pipeline bends made by other manufacturing processes.

On-land supply systems used by the gas supply industry excluding gas infrastructure from the input of gas into the on-shore transmission network up to the inlet connection of gas appliances are excluded from the scope of this standard.

## 2 Conformance

### 2.1 Units of measurement

In this International Standard, data are expressed in both SI units and USC units. For a specific order item, unless otherwise stated, only one system of units shall be used, without combining data expressed in the other system.

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

### 2.2 Rounding

Unless otherwise stated in this International Standard, to determine conformance with the specified requirements, observed or calculated values shall be rounded to the nearest unit in the last right-hand place of figures used in expressing the limiting value, in accordance with ISO 80000-1:2009, Annex B, Rule A.

NOTE For the purposes of this provision, the rounding method of ASTM E29-04<sup>[1]</sup> is equivalent to ISO 80000-1:2009, Annex B, Rule A.

### 2.3 Compliance to standard

A quality management system should be applied to assist compliance with the requirements of this International Standard.

NOTE ISO/TS 29001<sup>[4]</sup> gives sector-specific guidance on quality management systems.