Petroleum and natural gas industries - Pipeline transportation systems - Welding of pipelines

Petroleum and natural gas industries - Pipeline transportation systems - Welding of pipelines

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 14163:2002 sisaldab Euroopa standardi EN 14163:2001 + AC:2006 ingliskeelset teksti. Käesolev dokument on jõustatud 16.05.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 14163:2002 consists of the English text of the European standard EN 14163:2001 + AC:2006. This document is endorsed on 16.05.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard specifies the requirements for producing and inspecting girth, branch and fillet welds in the pipeline part of pipeline transportation systems for the petroleum and natural gas industries meeting the requirements of ISO 13623.	**Scope:** This European Standard specifies the requirements for producing and inspecting girth, branch and fillet welds in the pipeline part of pipeline transportation systems for the petroleum and natural gas industries meeting the requirements of ISO 13623.

ICS 25.160.10, 75.200

Võtmesõnad: combustible liquids, definition, definitions, gas circuits, industries, natural gas, natural gas industries, oil industries, oil pipes, petroleum, pipelines, welding

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14163

December 2001

ICS 25.160.10; 75.200

English version

Petroleum and natural gas industries - Pipeline transportation systems - Welding of pipelines (ISO 13847:2000 modified)

Industries du pétrole et du gaz naturel - Conduites pour systèmes de transport - Soudage des conduites (ISO 13847:2000 modifiée)

This European Standard was approved by CEN on 21 October 2001.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 14163:2001 E

Contents

Explanary Note

ISO 13847:2000, developed within ISO/TC 67 SC 2, has been taken over as a European Standard EN 14163 (ISO 13847:2000 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 item. 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 13847:2000 for the European adoption by CEN/TC 12.

Equivalence with European Standards is provided in Annex ZA

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 12 "Materials, equipment and offshore structures for petroleum 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 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

Annex ZA forms a normative part of this European Standard.

Annexes A, B, C and D of this European Standard are for information only.

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

Introduction

Users of this European Standard should be aware that further or differing requirements may be needed for individual applications. This European Standard is not intended to inhibit a contractor from offering, or the company from accepting, alternative engineering solutions for the individual application. This may be particularly applicable where there is innovative or developing technology. Where an alternative is offered, the manufacturer should identify any variations from this European Standard and provide details.

1 Scope

This European Standard specifies the requirements for producing and inspecting girth, branch and fillet welds in the pipeline part of pipeline transportation systems for the petroleum and natural gas industries meeting the requirements of ISO 13623.

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

This European Standard is applicable to the requirements for welding of carbon and low-alloy steel pipes. Application is restricted to pipes with a diameter of 20 mm and larger and wall thickness of 3 mm or more, and a specified minimum yield strength of 555 MPa or less. It is also applicable to welding into pipelines, items such as spools, risers, launchers/receivers, fittings, flanges and “pups” to pipeline valves.

The welding processes covered are shielded metal arc welding, gas tungsten arc welding, gas metal arc welding, flux-cored arc welding with and without shielding gas, and submerged arc welding.

This European Standard is not applicable to flash girth welding, resistance welding, solid-phase welding or other one-shot welding processes, nor to longitudinal welds in pipe or fittings, to “hot-tap” welding of pipelines in service or to the welding of process piping outside of the scope of ISO 13623.

NOTE Additional requirements may be necessary for welding of pipeline for particular pipeline operating conditions. These can include limitations on maximum hardness or strength, minimum impact toughness values, crack tip-opening displacement, all weld metal tensile testing or bend testing, thermal stress relief or others. Where appropriate, these additional requirements should be added to the requirements of this European Standard in a project-specific supplement.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 876:1995[1)], *Destructive tests on welds in metallic materials — Longitudinal tensile test on weld metal in fusion welded joints.*

EN 1043-1:1995, *Destructive tests on welds in metallic materials — Hardness testing — Part 1: Hardness test on arc welded joints.*

EN 1321:1996, *Destructive tests on welds in metallic materials — Macroscopic and microscopic examination of welds.*

ISO 148:1983[2)], *Steel — Charpy impact test (V-notch).*

ISO 857-1:1998, *Welding and allied processes — Vocabulary — Part 1 : Metal welding processes.*

ISO 1106-3:1984, *Recommended practice for radiographic examination of fusion welded joints — Part 3: Fusion welded circumferential joints in steel pipes of up to 50 mm wall thickness.*

ISO 3452:1984, *Non-destructive testing — Penetrant testing — General principles.*

1) CEN, European Committee for Standardization, Management Centre, Rue de Stassart 36, B-1050, Brussels, Belgium.

2) To be replaced by ISO 148-1:— (to be published), ISO 148-2:1998 and ISO 148-3:1998.

ISO 3453:1984, *Non-destructive testing — Liquid penetrant inspection — Means of verification.*

ISO 4136:1989, *Fusion-welded butt joints in steel — Transverse tensile test.*

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

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

ISO 6520-1:1998, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 1 : Fusion welding.*

ISO 6947:1990, *Welds — Working positions — Definitions of angles of slope and rotation.*

ISO 7963:1985, *Welds in steel — Calibration block No. 2 for ultrasonic examination of welds.*

ISO 9712:1999, *Non-destructive testing — Qualification and certification of personnel.*

ISO 9935:1992, *Non-destructive testing — Penetrant flaw detectors — General technical requirements.*

ISO 9956-2:1995, *Specification and approval of welding procedures for metallic materials — Part 2: Welding procedure specification for arc welding.*

ISO 9956-3:1995, *Specification and approval of welding procedures for metallic materials — Part 3: Welding procedure tests for arc welding of steels.*

ISO 10474:1991, *Steel and steel products — Inspection documents.*

ISO 13623:2000, *Petroleum and natural gas industries — Pipeline transportation systems.*

ISO 14732:1998, *Welding personnel — Approval testing of welding operators for fusion welding and of resistance weld setters for fully mechanized and automatic welding of metallic materials.*

ASME[3)] *Boiler and Pressure Vessel Code Section V:1998 — Nondestructive examination.*

AWS A5.01-93:1993[4)], *Filler metal procurement guidelines.*

AWS C5.3-91:1991, *Recommended practices for air carbon arc gouging and cutting.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in ISO 857-1, ISO 6520-1 and the following apply.

3.1
approved welder
welder who has been approved in accordance with the requirements of this European Standard

3.2
approved welding operator
welding operator who has been approved in accordance with the requirements of this European Standard

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

4) The American Welding Society, 550 NW LeJeune Road, Miami, FL 33126, USA.