

Põkk-keevitusega toruliitmikud. Osa 4: Spetsiifiliste järelvalvenõuetega survetöödeldav roostevaba austeniit- ja austeniit-ferriitteras

Butt-welding pipe fittings - Part 4: Wrought austenitic and austenitic-ferritic (duplex) stainless steels with specific inspection requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 10253-4:2008 sisaldab Euroopa standardi EN 10253-4:2008 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 19.05.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 19.03.2008.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 10253-4:2008 consists of the English text of the European standard EN 10253-4:2008.

This standard is ratified with the order of Estonian Centre for Standardisation dated 19.05.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 19.03.2008.

The standard is available from Estonian standardisation organisation.

ICS 23.040.40, 77.140.20

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English Version

Butt-welding pipe fittings - Part 4: Wrought austenitic and
austenitic-ferritic (duplex) stainless steels with specific
inspection requirements

Raccords à souder bout à bout - Partie 4: Aciers
inoxydables austénitiques et austéno-ferritiques avec
contrôle spécifique

Formstücke zum Einschweißen - Teil 4: Austenitische und
austenitisch-ferritische (Duplex-)Stähle mit besonderen
Prüfanforderungen

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

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

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Foreword

This document (EN 10253-4:2008) has been prepared by Technical Committee ECISS/TC 29 “Steel tubes and fittings for steel tubes”, the secretariat of which is held by UNI/UNSIDER.

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of an identical text or by endorsement, at the latest by September 2008, and conflicting national standards shall be withdrawn at the latest by September 2008.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the EU Directive 97/23/EC.

For relationship with the EU Directive 97/23/EC, see informative Annex ZA, which is an integral part of this document.

EN 10253 comprises a series of European Standards about *Butt-welding pipe fittings*, namely:

- *Part 1: Wrought carbon steel for general use and without specific inspection requirements*
- *Part 2: Non alloy and ferritic alloy steels with specific inspection requirements*
- *Part 3: Wrought austenitic and austenitic-ferritic (duplex) stainless steels without specific inspection requirements*
- *Part 4: Wrought austenitic and austenitic-ferritic (duplex) stainless steels with specific inspection requirements*

In writing EN 10253 the competent committee recognized that there are two broad types of products commonly used for stainless steels, and decided to reflect these in the standard by differentiating between two parts, Part 3 and Part 4.

Part 4 defines two types of fittings: Type A fittings have the same wall thickness at the welding ends than a pipe having the same specified wall thickness. Their resistance to internal pressure is, in general, less than that of a straight pipe with the same dimensions. Type B fittings showing increased wall thickness at the body of the fitting are designed to resist the same internal pressure as a straight pipe with same dimensions. These two types of fittings are intended to be used in applications covered by the EU Directive 97/23/EC. According to this Directive and further interpretation guidelines (e.g. guideline 7/19), seamless fittings are considered as materials whereas welded fittings are considered as components. Therefore, in some areas of this European Standard, provisions for seamless and welded fittings are different.

The committee recognized the need to provide a basic type in which the minimum wall thickness of the fitting is guaranteed without formal reference to the pressure resistance. This type is considered in Part 3 and includes products not intended for use in applications covered by the Pressure Equipment Directive category I – IV except applications according to Article 3 Paragraph 3.

Information about structural dimensions of fittings is given in Annex A.

For fittings specified in accordance with this part of EN 10253, the resistance to internal pressure of the fitting may be determined by calculation. Annex B gives information about the calculation.

For some wall thickness series Annex C lists pressure factors for fittings type A and Annex D lists wall thickness values for the body of the fittings of fittings type B.

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, 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

The European Committee for Standardisation (CEN) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents applied to steel grade 1.4410, the compositions of which is given in Table 3.

CEN takes no position concerning the evidence, validity and scope of these patent rights.

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1 Scope

1.1 This European Standard specifies the technical delivery requirements for seamless and welded butt-welding fittings (elbows, concentric and eccentric reducers, equal and reducing tees, caps) made of austenitic and austenitic-ferritic (duplex) stainless steel which are intended for pressure and corrosion resisting purposes at room temperature, at low temperature or at elevated temperatures.

It specifies:

- the type of fittings;
 - type A (see 7.2)
 - type B (see 7.3)
- the steel grades;
- the mechanical properties;
- the dimensions and tolerances;
- the requirements for inspection and testing;
- the inspection documents;
- the marking;
- the handling and packaging.

NOTE In the case of a harmonised supporting standard for materials, presumption of conformity to the Essential Requirement(s) (ESRs) is limited to technical data of materials in the standard and does not presume adequacy of the material to a specific item of equipment. Consequently the technical data stated in the material standard should be assessed against the design requirements of this specific item of equipment to verify that the ESRs of the Pressure Equipment Directive (PED) are satisfied.

1.2 Unless otherwise specified in this European Standard the general technical delivery requirements in EN 10021 apply.

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 473, *Non destructive testing - Qualification and certification of NDT personnel - General principles*

EN 910, *Destructive tests on welds in metallic materials – Bend test*

EN 1418, *Welding personnel - Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials*

EN 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test at ambient temperature*

- EN 10002-5, *Metallic materials - Tensile testing - Part 5: Method of testing at elevated temperature*
- EN 10021:2006, *General technical delivery conditions for steel products*
- EN 10027-1, *Designation systems for steels - Part 1: Steel names*
- EN 10027-2, *Designation systems for steels - Part 2: Numerical system*
- EN 10028-7, *Flat products made of steels for pressure purposes - Part 7: Stainless steels*
- EN 10045-1, *Metallic materials – Charpy impact test - Part 1: Test method*
- EN 10088-2, *Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*
- EN 10168, *Steel products - Inspection documents - List of information and description*
- EN 10204, *Metallic products - Types of inspection documents*
- EN 10216-5, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 5 : Stainless steel tubes*
- EN 10217-7, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 7: Stainless steel tubes*
- EN 10266:2003, *Steel tubes, fittings and structural hollow sections - Symbols and definitions of terms for use in product standards*
- EN 10272, *Stainless steel bars for pressure purposes*
- EN 13445-3, *Unfired pressure vessels - Part 3: Design*
- EN 13480-3:2002, *Metallic industrial piping - Part 3: Design and calculation*
- EN ISO 377:1997, *Steel and steel products - Location and preparation of samples and test pieces for mechanical testing (ISO 377:1997)*
- EN ISO 1127, *Stainless steel tubes - Dimensions, tolerances and conventional masses per unit length (ISO 1127:1992)*
- EN ISO 3166-1, *Codes for the representation of names of countries and their subdivisions - Part 1: Country codes (ISO 3166-1:2006)*
- EN ISO 3651-2, *Determination of resistance to intergranular corrosion of stainless steels - Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels - Corrosion test in media containing sulfuric acid (ISO 3651-2:1998)*
- EN ISO 6708, *Pipework components - Definition and selection of DN (nominal size) (ISO 6708:1995)*
- EN ISO 14284, *Steel and iron - Sampling and preparation of samples for the determination of chemical composition (ISO 14284:1996)*
- 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)*