



SLOVENSKI STANDARD

oSIST prEN 10253-1:2025

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Cevni fittingi za soležne zware - 1. del: Ogljikovo jeklo za splošno uporabo in brez posebnih zahtev kontrole

Butt-welding pipe fittings - Part 1: Wrought carbon steel for general use and without specific inspection requirements

Formstücke zum Einschweißen - Teil 1: Unlegierter Stahl für allgemeine Anwendungen und ohne besondere Prüfanforderungen

Raccords à souder bout à bout - Partie 1: Acier au carbone pour usages généraux et sans contrôle spécifique

Ta slovenski standard je istoveten z: prEN 10253-1

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English Version

Butt-welding pipe fittings - Part 1: Wrought carbon steel for general use and without specific inspection requirements

Raccords à souder bout à bout - Partie 1: Acier au
carbone pour usages généraux et sans contrôle
spécifique

Formstücke zum Einschweißen - Teil 1: Unlegierter
Stahl für allgemeine Anwendungen und ohne
besondere Prüfanforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 459/SC 10.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prEN 10253-1:2025**European foreword**

This document (prEN 10253-1:2025) has been prepared by Technical Committee CEN/TC 459 “ECISS – European Committee for Iron and Steel Standardization”¹, the secretariat of which is held by AFNOR.

This document is currently submitted to CEN Enquiry.

This document will supersede EN 10253-1:1999.

prEN 10253-1:2025 includes the following changes with respect to EN 10253-1:1999:

- a) restructuring of Clauses to reflect new layout of EN 10253-2 and EN 10253-4;
- b) revision of introduction;
- c) revision of scope;
- d) update of normative references;
- e) update of terms, symbols and abbreviations;
- f) removal of dished ends;
- g) addition of steel grade S265;
- h) update of options;
- i) revision of technical requirements and dimensions to reflect current state of the art;
- j) revision of Figures;
- k) moved dimensions to Annex A;
- l) standard editorially revised.

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.*

¹ Through its sub-committee SC 10 “Steel tubes, and iron and steel fittings” (secretariat: UNI).

Introduction

In writing this document the competent committee recognized that there are two broad types of products commonly used, and decided to reflect these in the standard by differentiating between two parts.

EN 10253-1 describes fittings without formal reference to the pressure resistance, which are not intended to be used in applications, covered by the European Legislation for Pressure Equipment.

EN 10253-2 defines fittings that are intended to be used in applications covered by the European Legislation for Pressure Equipment.

The selection of steel type and requirement level depend on many factors; the properties of the fluid to be conveyed, the service conditions, the design code and any statutory requirements should all be taken into consideration. Therefore this standard gives no detailed guidelines for the application of different parts. It is the ultimate responsibility of the user to select the appropriate part for the intended application.

iTeh Standards
(<https://standards.iteh.ai>)
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[oSIST prEN 10253-1:2025](https://standards.iteh.ai/catalog/standards/sist/5642f9fa-9199-48d8-9697-7e0fb63d7d7c/osist-pren-10253-1-2025)

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prEN 10253-1:2025

1 Scope

This document specifies the technical delivery requirements for seamless and welded butt-welding fittings (elbows, concentric and eccentric reducers, equal and reducing tees, caps) made of wrought carbon steel without specific inspection requirements.

It specifies:

- a) steel grade and its chemical compositions;
- b) mechanical properties;
- c) dimensions and tolerances;
- d) requirements for inspection and testing;
- e) inspection documents;
- f) marking;
- g) protection and packaging.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 10020, *Definition and classification of grades of steel*

EN 10021, *General technical delivery conditions for steel products*

EN 10079, *Definition of steel products*

[oSIST prEN 10253-1:2025](https://standards.iteh.ai/catalog/standards/sist/5642f9fa-9199-48d8-9697-7e0fb63d7d7c/osist-pren-10253-1-2025)

<https://standards.iteh.ai/catalog/standards/sist/5642f9fa-9199-48d8-9697-7e0fb63d7d7c/osist-pren-10253-1-2025>

EN 10168, *Steel products - Inspection documents - List of information and description*

EN 10204, *Metallic products - Types of inspection documents*

EN 10266, *Steel tubes, fittings and structural hollow sections - Symbols and definitions of terms for use in product standards*

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

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

EN ISO 3166-1, *Codes for the representation of names of countries and their subdivisions - Part 1: Country code (ISO 3166-1)*

EN ISO 4885, *Ferrous materials - Heat treatments - Vocabulary (ISO 4885)*

EN ISO 5817, *Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections (ISO 5817)*

EN ISO 6506-1, *Metallic materials - Brinell hardness test - Part 1: Test method (ISO 6506-1)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

EN ISO 9606-1, *Qualification testing of welders - Fusion welding - Part 1: Steels (ISO 9606-1)*

EN ISO 9712, *Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712)*

EN ISO 10893-10, *Non-destructive testing of steel tubes - Part 10: Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections (ISO 10893-10)*

EN ISO 10893-11, *Non-destructive testing of steel tubes - Part 11: Automated ultrasonic testing of the weld seam of welded steel tubes for the detection of longitudinal and/or transverse imperfections (ISO 10893-11)*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10020, EN 10021, EN 10079, EN ISO 377, and EN ISO 4885 and the following apply

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

3.1 model

designation for elbows, return bends, reducers, and caps

Note 1 to entry: For elbows and return bends the model defines the bending diameter of the piece.

Note 2 to entry: For reducers the model defines concentric, eccentric, or concentric - form 1 shape of the piece.

3.2 weld during manufacture

weld made for obtaining a fitting

Note 1 to entry: This term does not include the tube welds when a tube is used as starting material.

3.3 seamless fitting

fitting manufactured without welding from starting material which is not welded

3.4 welded fitting

fitting made from welded starting material or fitting where welding is a part of the manufacturing process

4 Symbols and abbreviations

For the purposes of this document, the symbols defined in EN 10266 and the following apply:

| | |
|-------------------------|---|
| <i>A</i> | Percentage of elongation at rupture, with reference to gauge length of $5,65 \sqrt{S_0}$ |
| <i>B</i> | Back to face distance for return bends, expressed in millimetres |
| <i>C</i> | Centre to centre distance for return bends ($C = 2R$), expressed in millimetres |
| <i>D</i> | Specified outside diameter for elbows, return bends, equal tees, caps and the major outside diameter for reducers and reducing tees, expressed in millimetres |
| <i>D₁</i> | Specified minor outside diameter for reducers and reducing tees, expressed in millimetres |
| <i>D_{max}</i> | Maximum diameter in one section, expressed in millimetres |
| <i>D_{min}</i> | Minimum diameter in the same section, expressed in millimetres |
| <i>F</i> | Distance from the axis of the branch outlet to the face of the centre body of tees, expressed in millimetres |
| <i>G</i> | Distance from the axis of the centre line to the face of the branch outlet expressed in millimetres |
| <i>ID</i> | Inside diameter at the welding ends of elbows, return bends, equal tees and at the major welding end of reducers and reducing tees ($ID = D - 2T$) |
| <i>ID₁</i> | Inside diameter at the minor welding end of reducers and reducing tees ($ID_1 = D_1 - 2T_1$) |
| <i>K</i> | Total height for caps, expressed in millimetres |
| <i>L</i> | Face to face distance for reducers, expressed in millimetres |
| <i>O_v</i> | Out of roundness, expressed in % |
| <i>R</i> | Bending radius of elbows and return bends, expressed in millimetres |
| <i>R₁</i> | Inside spherical radius of cap |
| <i>R₂</i> | Inside knuckle radius of cap |
| <i>R_{eH}</i> | Upper yield strength |
| <i>R_m</i> | Tensile strength, expressed in megapascals |
| <i>R_{p0,2}</i> | Minimum 0,2 % proof strength, plastic extension expressed in megapascals |
| <i>T</i> | Specified wall thickness at the welding ends for elbows, return bends, equal tees and bends or on the <i>D</i> end for reducers and reducing tees, expressed in millimetres |
| <i>T₁</i> | Specified wall thickness on the <i>D₁</i> welding end of reducers and reducing tees, expressed in millimetres |
| <i>W</i> | Distance from the extrados to the centre of a 90° elbow at the welding ends |
| <i>X</i> | Tolerance on the form of fittings |
| <i>Z</i> | Distance from the extrados to the centre of a 45° elbow at the welding ends |

5 Classification and designation

5.1 Classification of grades

In accordance with the classification system in EN 10020, the steel grades in this standard are classified as non-alloy quality steels.

5.2 Designation of steel grades

For the fittings covered by this document the steel designation consists of:

— the number of this document (prEN 10253-1);

plus

— steel grade S235 or S265.

5.3 Designation of fittings

5.3.1 General

Fittings are designated by their name and the following parameters.

5.3.2 Elbows and return bends

Elbows and return bends are designated by the following parameters:

a) model (2D, 3D or 5D);

b) angle;

c) outside diameter (D);

d) wall-thickness (T).

5.3.3 Reducers

Reducers are designated by the following parameters:

a) model [concentric (con), eccentric (ecc), or concentric - form 1 (con-1)];

b) major diameter (D) and wall-thickness (T);

c) minor diameter (D_1) and wall-thickness (T_1).

5.3.4 Tees

Equal and reducing tees are designed by the following parameters:

a) major diameter (D) and minor diameter (D_1);

c) wall-thickness (T) and wall-thickness (T_1).

NOTE If only one pair of dimension ($D \times T$) is given, an equal tee is meant.

5.3.5 Caps

Caps are designated by the following parameters: