



SLOVENSKI STANDARD

SIST EN 10357:2022

01-oktober-2022

Nadomešča:
SIST EN 10357:2014

Avstenitne, avstenitno-feritne in feritne vzdolžno varjene cevi iz nerjavnega jekla za prehrabno in kemično industrijo

Austenitic, austenitic-ferritic and ferritic longitudinally welded stainless steel tubes for the food and chemical industry

Austenitische, austenitisch-ferritische und ferritische längsnahtgeschweißte Rohre aus nichtrostendem Stahl für die Lebensmittel- und chemische Industrie

Tubes soudés longitudinalement en acier inoxydable austénitique, ferritique et austéno-ferritique pour l'industrie alimentaire et chimique

Ta slovenski standard je istoveten z: EN 10357:2022

ICS:

77.140.75	Jeklene cevi in cevni profili za posebne namene	Steel pipes and tubes for specific use
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SIST EN 10357:2022

en,fr,de

EUROPEAN STANDARD

EN 10357

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2022

ICS 23.040.10

Supersedes EN 10357:2013

English Version

Austenitic, austenitic-ferritic and ferritic longitudinally welded stainless steel tubes for the food and chemical industry

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Austenitische, austenitisch-ferritische und ferritische längsnahtgeschweißte Rohre aus nichtrostendem Stahl für die Lebensmittel- und chemische Industrie

This European Standard was approved by CEN on 17 July 2022.

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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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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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European foreword

This document (EN 10357:2022) 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 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of an identical text or by endorsement, at the latest by February 2023, and conflicting national standards shall be withdrawn at the latest by February 2023.

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

This document supersedes EN 10357:2013.

The follow significant technical changes were made in comparison to the previous version:

- Subclause 4.1, Table 1: added new dimension;
- Subclause 4.1, Table 2: deleted series B, changed dimensions in series C;
- Clause 7, Table 3: modified surface characteristics and roughness and symbols.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

EN 10357:2022 (E)**1 Scope**

This document specifies dimensions, tolerances, materials, internal and external surface characteristics, and marking of longitudinally fusion welded stainless steel tubes for the food and chemical industry.

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 10028-7:2016, *Flat products made of steels for pressure purposes - Part 7: Stainless steels*

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

EN 10217-7, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 7: Stainless steel tubes*

EN 10296-2, *Welded circular steel tubes for mechanical and general engineering purposes - Technical delivery conditions - Part 2: Stainless steel*

EN ISO 21920-3, *Geometrical product specifications (GPS) - Surface texture: Profile - Part 3: Specification operators (ISO 21920-3)*

3 Terms and definitions

No terms and definitions are listed in this document.

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/>

4 Dimensions and tolerances**4.1 Dimensions and tolerances for tubes**

Dimensions and tolerances for tubes are indicated in Table 1 and Table 2.

Table 1 — Preferred dimensions and tolerances ^a (mm)

Series A	External tube diameter	13,00	19,00	23,00	29,00	35,00	41,00	53,00	70,00	85,00	104,00	129,00	154,00	204,00	254,00
	External diameter tolerances	±0,10	±0,10	±0,12	±0,15	±0,18	±0,21	±0,27	±0,35	±0,43	±0,78	±0,97	±1,16	±1,53	±1,91
	Internal diameter (theoretical)	10,00	16,00	20,00	26,00	32,00	38,00	50,00	66,00	81,00	100,00	125,00	150,00	200,00	250,00
	Wall thickness	1,50	1,50	1,50	1,50	1,50	1,50	1,50	2,00	2,00	2,00	2,00	2,00	2,00	2,00
	Wall thickness tolerances	±0,15	±0,15	±0,15	±0,15	±0,15	±0,15	±0,15	±0,20	±0,20	±0,20	±0,20	±0,20	±0,20	±0,20

^a For dimensions different from the ones listed above the tolerances are:

EN ISO 1127-D4 for external diameter ≤ 85,00 mm.

EN ISO 1127-D3 for external diameter > 85,00 mm.

In external diameter tolerances ovality is included.

For wall thickness ± 10 %.

Table 2 — Alternative dimensions and tolerances ^a (mm)

Series C	External tube diameter	12,70	19,05	25,40	38,10	50,80	63,50	76,20	101,60	152,40
	External diameter tolerances	±0,13	±0,13	±0,13	±0,20	±0,20	±0,25	±0,25	±0,38	±0,76
	Internal diameter (theoretical)	9,40	15,75	22,10	34,80	47,50	60,20	72,90	97,38	146,86
	Wall thickness	1,65	2,11	2,77						
	Wall thickness tolerances	±0,17	±0,17	±0,17	±0,17	±0,17	±0,17	±0,17	±0,21	±0,28
Series D	External tube diameter	25,00	32,00	38,00	51,00	63,50	76,10	101,60		
	External diameter tolerances	±0,13	±0,16	±0,19	±0,25	±0,32	±0,38	±0,76		
	Internal diameter (theoretical)	22,60	29,60	35,60	48,60	60,30	72,90	97,60		
	Wall thickness	1,20	1,20	1,20	1,20	1,60	1,60	2,00		
	Wall thickness tolerances	±0,12	±0,12	±0,12	±0,12	±0,16	±0,16	±0,20		
^a For dimensions different from the ones listed above the tolerances are: EN ISO 1127-D4 for external diameter ≤ 76,20 mm. EN ISO 1127-D3 for external diameter > 76,20 mm. In external diameter tolerances ovality is included. For wall thickness ± 10 %.										

4.2 Straightness

Straightness deviation for a given length shall be determined by the following formula:

$$0,0015 \times \text{length}$$

and shall not exceed 2 mm/m.

5 Information to be supplied by the purchaser

5.1 General

If product falls under PED, it is the responsibility of the purchaser to specify all relevant requirements as per 5.2 and 5.3.

5.2 Mandatory information

The following information shall be supplied by the purchaser at the time of enquiry and order:

- a) the quantity (total weight or total metres or number of tubes);
- b) the reference to this document;
- c) the term “tube”;
- d) manufacturing process symbol (CL1 CC, CL1 CD, CL1 BC, CL1 BD, CL2 CC, CL2 CD, CL2 BC, CL2 BD) and surface characteristics (see Table 3);
- e) the dimensions (outside diameter D and wall thickness T) (see Table 1 and Table 2);
- f) single unit length and related tolerance;
- g) the designation of the steel grade according to EN 10217-7 except for ferritic grades;
- h) the designation of the steel grade according to EN 10028-7 only for ferritic;
- i) production and testing according to EN 10217-7 TC1 or TC2; for ferritic grades the reference values shall be agreed;
- j) other options according to EN 10217-7.

5.3 Options

If not specified at the time of the enquiry and order, the standard tubes are supplied in Class 1 (see Table 3).

Tubes according product class 2 (see Table 3) shall be requested at the time of the enquiry and order.

5.4 Example of an order

5.4.1 Example 1

1 000 m of welded tube according to EN 10357, manufacturing process and product class CL1 BC, external diameter = 41 mm, thickness = 1,5 mm, single unit length 6 000 mm (0/+100) mm test category 1 according to EN 10217-7, grade 1.4404 and inspection certificate 3.1 according to EN 10204:

1 000 m Tube EN 10357 — CL1 BC - 41 × 1,5 × 6 000 (0/+100) mm - TC1 – EN 10217-7/1.4404 - 3.1

EN 10357:2022 (E)**5.4.2 Example 2**

1 000 m of welded tube according to EN 10357, manufacturing process and product class CL2 BD, external diameter = 70 mm, thickness = 2 mm, single unit length 6 000 mm (0/+100) mm test category 1 according to EN 10217-7, grade 1.4404 and inspection certificate 3.1 according to EN 10204:

1 000 m Tube EN 10357 — CL2 BD - 70 × 2 × 6 000 (0/+100) mm - TC1 – EN 10217-7/1.4404 - 3.1

6 Materials

Materials used for tubes manufacturing according to this document shall be:

- austenitics and austenitic-ferritics according to EN 10028-7;
- ferritics according to EN 10028-7.

See also Annex A for information on selection of material.

7 Manufacturing process, requirements and surface characteristics

The tubes shall be manufactured from cold rolled plate, sheet or strip, longitudinally fusion welded, with or without the addition of filler metal.

Manufacturing process, requirements and surface characteristics are specified in Table 3.

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<https://standards.iteh.ai/catalog/standards/sist/ec50f3f5-c9b6-4b11-b89d-ba7477ae13d0/sist-en-10357-2022>