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Stainless steel tubes for the food industry

Tubes en acier inoxydable pour l'industrie alimentaire



Reference number
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ISO 2037:1992(E)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 2037 was prepared by Technical Committee ISO/TC 5, *Ferrous metal pipes and metallic fittings*, Sub-Committee SC 1, *Steel tubes*.

This second edition cancels and replaces the first edition (ISO 2037:1980), the table of which has been technically revised.

Annex A of this International Standard is for information only.

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International Organization for Standardization

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Stainless steel tubes for the food industry

1 Scope

This International Standard specifies the dimensions, tolerances, surface roughness, materials and hygienic requirements for seamless or welded stainless steel tubes in straight lengths for the food industry.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 468:1982, *Surface roughness — Parameters, their values and general rules for specifying requirements*.

ISO 5252:1991, *Steel tubes — Tolerance systems*.

3 Dimensions

The dimensions given in table 1 have been extracted from ISO 1127:1992, series 1 and 2 outside diameter. For further information concerning the series, see also ISO 4200.

Table 1

Dimensions in millimetres

Tube outside diameter	Thickness
12	1
12,7	1
17,2	1
21,3	1
25	1,2; 1,6
33,7	1,2; 1,6
38	1,2; 1,6
40	1,2; 1,6
51	1,2; 1,6
63,5	1,6
70	1,6
76,1	1,6
88,9	2
101,6	2
114,3	2
139,7	2
168,3	2,6
219,1	2,6
273	2,6
323,9	2,6
355,6	2,6
406,4	3,2

ISO 2037:1992(E)**4 Dimensional tolerances**

The deviations permitted for the outside diameter and thickness are limited by the tolerances specified in 4.1 and 4.2.

4.1 Tolerance on outside diameter

The tolerance on outside diameters less than or equal to 101,6 mm shall be class D4 in accordance with ISO 5252:1991.

For outside diameters greater than 101,6 mm, this tolerance shall be class D3 in accordance with ISO 5252:1991.

4.2 Tolerance on thickness

The tolerance on thickness shall be class T3 in accordance with ISO 5252:1991.

5 Surface roughness

The surface roughness, in accordance with the specifications of ISO 468, shall be as follows.

5.1 Finely finished surface

$$R_a \leq 1 \mu\text{m}$$

5.2 Other surfaces

$$R_a \leq 2,5 \mu\text{m}$$

The surface roughness on welded seams shall not exceed $R_y = 16 \mu\text{m}$.

6 Materials

Austenitic stainless steels shall be used. Generally the following steel types are suitable for pressure purposes:

- seamless tubes : TS 47, TS 60 and TS 61 in accordance with ISO 2604-2:1975;
- welded tubes: TW 47, TW 60 and TW 61 in accordance with ISO 2604-5:1978.

7 Hygienic requirements

7.1 Care shall be taken that any non-ferrous metals or their alloys coming into contact with the tubes during manufacture do not leave deposits which will be harmful during subsequent fabrication and use.

7.2 The interior surface of the tubes shall be clean and smooth. It shall be free from surface defects, inclusions and longitudinal grooving.

Annex A

(informative)

Bibliography

- [1] ISO 1127:1992, *Stainless steel tubes — Dimensions, tolerances and conventional masses per unit length.*
- [2] ISO 2604-2:1975, *Steel products for pressure purposes — Quality requirements — Part 2: Wrought seamless tubes.*
- [3] ISO 2604-5:1978, *Steel products for pressure purposes — Quality requirements — Part 5: Longitudinally welded austenitic stainless steel tubes.*
- [4] ISO 4200:1991, *Plain end steel tubes, welded and seamless — General tables of dimensions and masses per unit length.*

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