



SLOVENSKI STANDARD
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**Aluminij in aluminijeve zlitine - Iztiskane okrogle, navite cevi za splošno uporabo -
Specifikacija**

Aluminium and aluminium alloys - Extruded round, coiled tube for general applications -
Specification

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Aluminium et alliages d'aluminium - Tubes ronds filés, fournis en couronnes pour
applications générales - Spécification

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English Version

Aluminium and aluminium alloys - Extruded round, coiled tube for general applications - Specification

Aluminium et alliages d'aluminium - Tubes ronds filés,
fournis en couronnes pour applications générales -
Spécification

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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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Foreword

This document (prEN 13957:2007) has been prepared by Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13957:2003.

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC 132/WG 5 "Extruded and drawn products" to revise EN 13957:2003.

The following editorial modifications have been introduced during the revision:

- the contents, text and tables have been changed to bring this European Standard in line with EN 755.

The following technical modifications have been introduced during the revision:

- Clause 1 has been amended to make clear the products covered by this European Standard and those which are not. In addition, the list of the most commonly used general engineering alloys is replaced by a reference to the alloy group only.
- Clauses 3 and 4: the text and the tables have been updated.
- Annex A (informative) has been added to provide further explanation of wall thickness variation (eccentricity) along with some examples.

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.

CEN/TC 132 affirms that it is its policy that in the case when a patentee refuses to grant licenses on standardised standard products under reasonable and not discriminatory conditions, then this product is removed from the corresponding standard.

1 Scope

This European Standard specifies the tolerances on dimensions and form for aluminium and aluminium alloys extruded, round porthole tubes with an outside diameter (*OD*) of over 2 mm up to and including 50 mm supplied in coil form or in straight lengths cut from coiled material: see Figure 1.

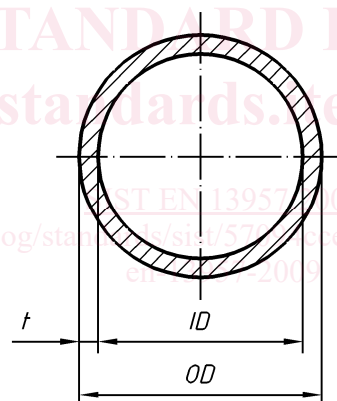
This European Standard mainly applies to extruded tube for general engineering applications made in the standard 1xxx and 3xxx series of alloys. The use of this European Standard for non-standardised 1xxx/3xxx alloys or alloys from other series (e.g. 5xxx or 6xxx) is subject to agreement between supplier and purchaser.

This European Standard only applies to:

- tube produced by the porthole/bridge method, extruded in coil form to the final dimensions required;
- tube as above but delivered in straight lengths cut from coiled material.

This European Standard does not apply to:

- extruded tubes produced by the seamless, die/mandrel method;
- tubes extruded in straight lengths i.e. not coiled.



Key

- OD* Outside diameter
- ID* Inside diameter
- t* Wall thickness

Figure 1 — Round tube

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 573-3, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition*

prEN 755-2¹⁾, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 2: Mechanical properties*

EN 12258-1, *Aluminium and aluminium alloys — Terms and definitions — Part 1: General terms*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12258-1 and the following apply.

3.1

order document

document or set of documents agreed between supplier and purchaser at the time of ordering

NOTE The order document may be an order from the purchaser and confirmed by the supplier or a quotation from the supplier and confirmed by the purchaser.

4 Ordering information

The order document shall contain the following:

- a) the form and type of product:
 - 1) form of the product - porthole extruded tube in coil form or straight lengths;
 - 2) designation and temper of the aluminium or aluminium alloy in accordance with prEN 755-2;
 - 3) any special requirements identified by the purchaser;
- b) a reference to this European Standard (prEN 13957); 2009
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- c) the dimensions of the tube:
 - 1) outside diameter;
 - 2) inside diameter;
 - 3) wall thickness;
 - 4) length (where appropriate);
- d) the coil characteristics (where appropriate):
 - 1) inner coil diameter (often fixed/standardised);
 - 2) outer coil diameter;
 - 3) width/height of coil;
 - 4) coil weight limitations;
 - 5) drum/bobbin dimensions (where appropriate);

1) Under preparation.

- e) the quantity:
 - 1) mass;
 - 2) number of pieces;
 - 3) total length;
 - 4) tolerance on quantity;
- f) any requirements for inspection documents;
- g) any special requirements agreed between supplier and purchaser:
 - 1) marking of products, e.g. special identification;
 - 2) references to drawings, part numbers, etc.;
 - 3) additional or special testing;
 - 4) surface finish requirements;
 - 5) surface protection;
 - 6) packaging;
 - 7) use of A_{50mm} value instead of A value for elongation;
- h) where special requirements are specified, this shall be stated on the order document with reference to the relevant European Standards.

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5 Requirements

5.1 Production and manufacturing processes

Unless otherwise specified in the order document, the production and manufacturing processes shall be left to the discretion of the manufacturer. Unless it is explicitly stated in the order document, no obligation shall be placed on the manufacturer to use the same processes for subsequent similar orders.

5.2 Quality control

The supplier shall be responsible for the performance of all inspection and tests required by the relevant European Standard and/or the particular specification prior to shipment of the product. If the purchaser wishes to inspect the product at the manufacturer's works, he shall notify the supplier at the time of placing the order.

5.3 Chemical composition

The chemical composition shall be in conformity with the requirements specified in EN 573-3.

If the purchaser requires closer limits for elements other than those specified in EN 573-3, these special limits shall be stated in the order document (after agreement between supplier and purchaser).

5.4 Mechanical properties

The mechanical properties shall be in conformity with those specified in prEN 755-2 or those agreed between supplier and purchaser and stated in the order document.

Typical Brinell hardness (mainly used for flat surfaces, i.e. basically not suitable for round tubes/non-flat surfaces) values are given in prEN 755-2, but they are not binding for acceptance purposes.

5.5 Surface quality

5.5.1 Surface quality in general

The surface shall be free from defects prejudicial to its suitable and proper use. The reference standards shall be agreed between supplier and purchaser.

The product shall have a smooth and clean surface. However, small surface defects such as light scratches, indentations, discolouration and non-uniform surface appearance resulting from the manufacturing process (which cannot always be totally avoided) are generally permitted on the product surface. Such surface quality is commonly referred to as “normal quality”.

A greater degree of tolerance of surface defects (in respect to both the number and severity) is normally necessary for tube supplied in coil form compared to straight lengths, since it is not possible to remove individual defects within the coil. This issue should be taken into account by the purchaser when placing an order for coiled tube.

5.5.2 Surface defects and detection

In the case of stricter and more specific requirements than “normal quality”, the following shall be subject to agreement between supplier and purchaser:

- the testing/detection method (e.g. eddy current testing, pressure/leak testing etc.);
- the type (scratches, dents etc.) and size of defects;
- the method of marking the defects (e.g. ink, paint).

5.5.3 Surface lubrication

A surface lubricant may be provided if required to:

- prevent the occurrence of fretting corrosion during transport;
- reduce the risk for surface defects created during subsequent manufacturing processes (e.g. decoiling, straightening, cutting, tube manipulation etc.);
- improve the resistance to surface failures related to surface damage resulting from improper handling and/or storage (e.g. water stains, condensation etc.).

The type and amount of lubrication can have an impact on the subsequent manufacturing process and the final application. As a result, the type and amount of lubricant shall be subject to agreement between supplier and purchaser.

5.6 Coil characteristics

5.6.1 Coil dimensions

The following coil dimensions shall be subject to agreement between supplier and purchaser:

- the outside diameter, inside diameter and maximum width/height or weight of the coil;
- in the case of coils to be supplied on drums/bobbins, the dimensions of the drum/bobbin shall also be specified.

5.6.2 Type of coil winding

The type of coil winding (random or level winding) can be of importance to the subsequent manufacturing process (e.g. decoiling, straightening etc.) and shall, in such cases, be subject to agreement between supplier and purchaser.

5.7 Additional requirements

Any additional requirements shall be agreed between supplier and purchaser and stated on the order document.

6 Tolerances on dimensions

6.1 General

When the outside diameter *OD*, inside diameter *ID*, and wall thickness *t* are all specified, standard tolerances shall apply to any two of these dimensions, but not to all three. As a result, the purchaser shall state only two nominal dimensions on any given order.

6.2 Diameter (outside and/or inside)

Mean diameter is defined as the average of two diameter measurements taken at right angles to each other at any point along the tube length.

Ovality is defined as the measured difference between the individual maximum and minimum diameters at any point in the cross section (usually occurs at or about right angles to each other) and at any point along the tube length.

The tolerances on diameter are given in Table 1.

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Table 1 — Tolerances on diameter (*OD* and *ID*) for round tube

Dimensions in millimetres

Specified diameter (<i>OD</i> or <i>ID</i>)		Tolerance on diameter ^a		
		Maximum allowable deviation of mean diameter from specified diameter	Maximum allowable deviation of diameter at any point from specified diameter (including ovality)	
over	up to and including			Tubes in coil form ^b
2	10	± 0,20	± 0,60	± 0,30
10	18	± 0,25	± 0,70	± 0,40
18	30	± 0,30	± 0,90	± 0,50
30	50	± 0,35	± 1,20	± 0,60

^a Applies only to tubes supplied in standard 1xxx and 3xxx alloys. Tolerances for other alloy groups (e.g. 5xxx or 6xxx) and/or tempers are subject to agreement between supplier and purchaser.

^b Applies only to coiled tubes supplied in as extruded condition (F/H112 temper).

^c Applies only to tubes supplied in straight lengths (temper H112) cut from coiled material.