SLOVENSKI STANDARD
oSIST prEN 941:2021

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Aluminij in aluminijeve zlitine - Rondele in polizdelki za splošno uporabo - Specifikacije

Aluminium and aluminium alloys - Circle and circle stock for the production of general applications - Specifications

Aluminium und Aluminiumlegierungen - Ronden und Rondenvormaterial für allgemeine Anwendungen - Spezifikationen

Aluminium et alliages d'aluminium - Disques et ébauches pour disques pour applications générales - Spécifications

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English Version

Aluminium and aluminium alloys - Circle and circle stock for the production of general applications - Specifications

Aluminium et alliages d'aluminium - Disques et ébauches pour disques pour applications générales - Spécifications

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 132.

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

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European foreword

This document (prEN 941:2021) 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 941:2014.

Compared to the previous edition, 6.4 was modified.

1 Scope

This document specifies the particular requirements for wrought aluminium and aluminium alloys in the form of circle or circle stock for general applications.

It applies to:

— Circles made out of hot or cold rolled circles stock by:

  — Blanking: thickness 0,2 mm up to including 12 mm and with a diameter up to 1 000 mm;

  — Sawing or shearing: thickness 0,2 mm up to and including 200 mm with a diameter up to 3 500 mm;

— Hot or cold rolled circle stock with a thickness from 0,2 mm up to and including 200 mm and with a width up to 3 500 mm.

It does not apply to slugs for impact extrusions or to circle and circle stock for culinary utensils applications which are dealt with in other European Standards.

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 485-1:2016, *Aluminium and aluminium alloys - Sheet, strip, and plate - Part 1: Technical conditions for inspection and delivery*

EN 485-2, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties*

EN 485-3:2003, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 3: Tolerances on dimensions and form for hot-rolled products*

EN 485-4:1993, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 4: Tolerances on shape and dimensions for cold-rolled products*

EN 515, *Aluminium and aluminium alloys - Wrought products - Temper designations*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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 http://www.electropedia.org/

3.1
circle
circular flat product obtained by circular sawing or shearing, or by blanking of a flat rolled product with a uniform thickness over 0,20 mm

3.2
circle stock
flat rolled product of rectangular cross-section with uniform thickness over 0,20 mm, supplied in coils, sheets, or plates, usually with sheared or sawn edges, and intended to be sawn, sheared or blanked into flat shapes to be subsequently formed, drawn, etc

Note 1 to entry: The thickness does not exceed one tenth of the width.

3.3
hot rolled circle and circle stock
circle or circle stock whose final thickness is obtained by hot rolling

3.4
cold rolled circle and circle stock
circle or circle stock whose final thickness is obtained by cold rolling

4 Technical conditions for inspection and delivery

4.1 General

All the provisions of EN 485-1 shall apply, except EN 485-1:2016, Clause 4 (Orders and tenders) which is modified as follows:

4.2 Orders or tenders

The order or tender shall define the product required and shall contain the following information:

a) the form and the type of product:

   1) the form of the product (circle and circle stock);
   2) the designation of the aluminium or aluminium alloy;
   3) the customer application;

b) the metallurgical temper of the material for delivery according to EN 515 (degree of hardness or heat treatment condition) and, if different, the metallurgical temper for use;

c) the reference of this document or of the relevant Technical Specification, or where none exists, the properties agreed between purchaser and supplier;

d) the dimensions and shape of the product as applicable:

   1) thickness;

   2) diameter of the circle;

   3) width of the strip, sheet, or plate;

   4) length of the sheet or plate;

   5) internal and external diameters of the coil;

e) whether hot rolled or cold rolled tolerances apply;

f) quantity:

   1) mass or number of pieces;

   2) tolerances on quantity if required;

g) any requirements for certificates of conformity, test and/or analysis reports or inspection certificates;

h) any special requirements agreed between purchaser and supplier:

   1) marking of products;

   2) references to drawings, etc.

5 Mechanical properties

The mechanical properties shall conform to the requirements specified in EN 485-2.

6 Tolerances on dimensions and form

6.1 General

All provisions of EN 485-3 and EN 485-4 shall apply with the following amendments and additions.

6.2 Diameter

Tolerances on diameters for circle shall conform to Table 1. These tolerances include the tolerances on roundness.

For circle obtained by blanking the recommended standard diameters are:

— From 100 mm up to 500 mm nominal diameter: every multiple of 5;

— Over 500 mm up to 1 000 mm nominal diameter: every multiple of 10.

6.3 Thickness

Tolerances on thickness for hot rolled circle and circle stock shall conform to Table 2. They are identical to those specified in EN 485-3:2003, Table 1 and are reproduced here for convenience.

The tolerances on thickness for cold rolled circle and circle stock shall conform to Table 3. They are identical to those specified in EN 485-4:1993, Table 1 and are reproduced here for convenience. The partition into group I and group II of most common materials which may be used for the present application shall be as shown in Table 4.

6.4 Tolerances on flatness for circles

Tolerances on flatness for circles, expressed as a percentage of the diameter *D* and/or the measured chord length *L*, shall conform to Table 5.

Deviation from flatness *d*, resulting from arching or buckling, shall be measured as shown in Figures 1 and 2, using a lightweight straightedge and a feeler gauge, dial gauge or scale, at least the same length as the circle, while the circle is resting on a horizontal base plate, concave side upwards.

Two measurements shall be carried out with the straight edge respectively parallel and perpendicular to the rolling direction.

These tolerances do not apply to circles supplied in O or F tempers except for special agreement between supplier and purchaser.

Table 1 — Tolerances on diameter

Dimensions in millimetres

Specified thickness		**Method of production**	**Diameter tolerances for specified diameter** [a]				
over	up to		up to 600	over 600 up to 1 000	over 1 000 up to 1 600	over 1 600 up to 3 000	over 3 000 up to 3 500
0,2	4	Blanking	±0,5	±0,5	-	-	-
		circular sawing or shearing	+ 3 0	+ 4 0	+ 7 0	+ 9 0	+ 11 0
4	6	Blanking	±0,7	±0,7	-	-	-
		circular sawing or shearing	+ 4 0	+ 5 0	+ 8 0	+ 9 0	+ 11 0
6	12	Blanking	±1	±1	-	-	-
		circular sawing or shearing	+ 4 0	+ 5 0	+ 8 0	+ 10 0	+ 12 0
12	50	circular sawing or shearing	+ 7 0	+ 7 0	+ 9 0	+ 12 0	+ 14 0
50	200	circular sawing or shearing	+ 10 0	+ 10 0	+ 12 0	+ 14 0	+ 16 0

[a] These tolerances include the tolerances on roundness.

Table 2 — Thickness tolerances for hot rolled circle and circle stock

Dimensions in millimetres

Specified thickness		Thickness tolerance for specified diameter or width				
over	up to	up to 1 250	over 1 250 up to 1 600	over 1 600 up to 2 000	over 2 000 up to 2 500	over 2 500 up to 3 500
2,5	4,0	±0,28	±0,28	±0,32	±0,35	±0,40
4,0	5,0	±0,30	±0,30	±0,35	±0,40	±0,45
5,0	6,0	±0,32	±0,32	±0,40	±0,45	±0,50
6,0	8,0	±0,35	±0,40	±0,40	±0,50	±0,55
8,0	10	±0,45	±0,50	±0,50	±0,55	±0,60
10	15	±0,50	±0,60	±0,65	±0,65	±0,80
15	20	±0,60	±0,70	±0,75	±0,80	±0,90
20	30	±0,65	±0,75	±0,85	±0,90	±1,0
30	40	±0,75	±0,85	±1,0	±1,1	±1,2
40	50	±0,90	±1,0	±1,1	±1,2	±1,5
50	60	±1,1	±1,2	±1,4	±1,5	±1,7
60	80	±1,4	±1,5	±1,7	±1,9	±2,0
80	100	±1,7	±1,8	±1,9	±2,1	±2,2
100	150	±2,2	±2,2	±2,7	±2,8	-
150	200	±2,8	±2,8	±3,3	±3,3	-