



SLOVENSKI STANDARD

SIST EN 851:1998

01-april-1998

Aluminij in aluminijeve zlitine - Rondele in polizdelki za izdelavo jedilnih pripomočkov in posodja - Specifikacije

Aluminium and aluminium alloys - Circle and circle stock for the production of culinary utensils - Specifications

Aluminium und Aluminiumlegierungen - Ronden und Rondenvormaterial zur Herstellung von Küchengerätschaften - Spezifikationen

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

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ICS:

77.150.10 Alumijski izdelki Aluminium products

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EUROPEAN STANDARD

EN 851

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1995

ICS 77.120.10; 77.140.90

Descriptors: aluminium, aluminium alloys, rolled products, manufacturing, kitchen utensils, blank, delivery, mechanical properties, dimensions, dimensional tolerances, roughness

English version

**Aluminium and aluminium alloys - Circle and circle
stock for the production of culinary utensils -
Specifications**

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

Aluminium und Aluminiumlegierungen - Ronden und
Rondenvormaterial zur Herstellung von
Küchengeschirr - Spezifikationen

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This European Standard was approved by CEN on 1995-02-08. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 132 "Aluminium and aluminium alloys" of which the secretariat 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 December 1995, and conflicting national standards shall be withdrawn at the latest by December 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

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1 Scope

This standard specifies the particular requirements for wrought aluminium and aluminium alloys in the form of circle or circle stock for culinary utensil applications.

This standard is applicable to :

- circles made out of hot or cold-rolled circle stock, with a thickness from 0,2 mm up to and including 12 mm and with a diameter from 100 mm up to and including 1 600 mm.

NOTE : Circles with a diameter up to 1 000 mm may be produced by blanking.

- hot or cold-rolled circle stock with a thickness from 0,2 mm up to and including 12 mm and with a width up to 1 600 mm.

This standard is not applicable to slugs for impact extrusions which are dealt with in a separate European Standard.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- | | |
|----------|---|
| EN 485-1 | 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 | Aluminium and aluminium alloys - Sheet, strip and plate - Part 3 : Tolerances on dimensions and form for hot-rolled products |
| EN 485-4 | Aluminium and aluminium alloys - Sheet, strip and plate - Part 4 : Tolerances on dimensions and form for cold-rolled products |
| EN 515 | Aluminium and aluminium alloys - Wrought products - Temper designations |
| EN 602 | Aluminium and aluminium alloys - Wrought products - Chemical composition of semi-products used for the fabrication of articles for use in contact with food |

3 Definitions

For the purposes of this standard all definitions of EN 485-1 apply with the following additions :

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 : 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 provisions of EN 485-1 shall apply, except for clause 4 (orders and tenders) which is modified as follows :

4.2 Orders or tenders **(standards.iteh.ai)**

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

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- a) the form and type of product ;
- the form of the product (circle or circle stock) ;
 - the designation of the aluminium or aluminium alloy ;
 - when subsequent decorative anodizing, anti-adhesive coating, enamelling, etc. by the customer is intended, this shall be expressly stated on the order. In all other cases, indication of the customer application is recommended ;
- 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 number of this European Standard or a specification number, or, where none exists, the properties agreed between purchaser and supplier ;
- d) the dimensions and shape of the product as applicable :
- thickness ;
 - diameter of the circle ;
 - width of the strip, sheet or plate ;
 - length of the sheet or plate ;
 - internal and external diameters of the coil ;

- e) whether hot-rolled or cold-rolled tolerances apply ;
- f) quantity :
 - mass or number of pieces ;
 - tolerances on quantity if required ;
- g) any requirements for inspection documents ;
- h) any special requirements agreed between purchaser and supplier :
 - marking of products ;
 - references to drawings, etc. ;
 - any special test required (earring, etc.) and the corresponding acceptance limits ;
- i) for products intended to be surface treated by the purchaser the order shall also contain the following information :
 - the intended particular surface treatment (according to the relevant EN standard) ;
 - the number of sides for which a good visual appearance is required and, if only one side, its position with respect to the strip (inside or outside of the coil) or the sheet, plate or circle (upside or downside).

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5 Mechanical properties

5.1 General

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

5.2 Earring

When applications, such as deep-drawing and spinning, require a limited level of earring, the maximum acceptable level of earring shall be agreed between purchaser and supplier, recognizing that test results may be dependent on testing procedures.

6 Tolerances on dimensions and form

6.1 General

Tolerances on dimensions and form shall conform to EN 485-3 and EN 485-4, with the amendments and additions given in 6.2 to 6.5.

6.2 Diameter

Tolerances on diameter for circle shall conform to table 1. These tolerances include the tolerances on roundness.

NOTE : 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.

Tolerances on thickness for cold-rolled circle and circle stock shall conform to table 3. The partition into group I and group II of most common materials which may be used for the present application, in conformance with/EN 602, shall be as shown in table 4.

6.4 Tolerances on flatness for circle

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, 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.

6.5 Edge burr tolerances for circle

The edge burr shall not be detachable under slight pressure with the thumb, in order not to induce mechanical defects on the surface during the subsequent forming operations (deep-drawing, spinning, etc.).

NOTE : It is recommended that the height of the total burr as measured from the flat surface of the circle (see figure 3) should not exceed :

- 0,2 mm for thicknesses up to 2 mm ;
- 10 % of the nominal thickness for thicknesses above 2 mm.

7 Other requirements

Particular surface roughness requirements may be agreed between supplier and customer. In that case the maximum acceptable roughness shall be specified as well as the method of measurement, according to an appropriate standard or specification, and the location and number of measuring points.