



SLOVENSKI STANDARD

SIST EN 1386:1998

01-april-1998

Aluminij in aluminijeve zlitine - Pločevina z reliefnimi vzorci - Specifikacije

Aluminium and aluminium alloys - Tread plate - Specifications

Aluminium und Aluminiumlegierungen - Bleche mit eingewalzten Mustern - Spezifikationen

Aluminium et alliages d'aluminium - Tôles relief - Spécifications

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Ta slovenski standard je istoveten z: **EN 1386:1996**

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ICS:

77.150.10 Aluminijski izdelki Aluminium products

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EUROPEAN STANDARD

EN 1386

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 1996

ICS 77.120.10; 77.140.90

Descriptors: aluminium, aluminium alloys, metal plates, metal strips, rolled products, thickness, specifications, delivery, orders : sales documents, mechanical properties, dimensional tolerances, inspection, tension tests, bend tests, corrosion resistance, tread plate

English version

Aluminium and aluminium alloys - Tread plate - Specifications

Aluminium et alliages d'aluminium - Tôles
relief - Spécifications

Aluminium und Aluminiumlegierungen - Bleche mit
eingewalzten Mustern - Spezifikationen

This European Standard was approved by CEN on 1996-11-24. 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 Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", 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 June 1997, and conflicting national standards shall be withdrawn at the latest by June 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of 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 and the United Kingdom.

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1 Scope

This European Standard specifies the technical conditions for inspection and delivery, mechanical properties, tolerances on dimensions and other requirements for wrought aluminium and aluminium alloy sheets, strips and plates, rolled flat with a raised pattern on one side and a smooth surface on the other side.

It applies to sheets, strips and plates 1,2 mm to 20 mm in thickness and up to and including 2 500 mm in width, and to sheets and plates up to 12 500 mm in length.

Products in accordance with this standard are mainly used as floor plating, e.g. in vehicle construction, shipbuilding and metallic structures.

This standard is applicable in conjunction with EN 485-1 which specifies the technical conditions for inspection and delivery for wrought aluminium and aluminium alloy sheets, strips and plates.

The chemical composition limits for these materials are specified in EN 573-3.

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 515	Aluminium and aluminium alloys - Wrought products - Temper designations
EN 573-3	Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3 : Chemical composition
EN 10002-1	Metallic materials - Tensile testing - Part 1 : Method of test (including amendment 1:1990)
ISO 7438	Metallic materials - Bend test
ASTM G66 - 86	Visual assessment of exfoliation corrosion susceptibility of 5xxx series aluminium alloys (ASSET test)

3 Definitions

Sheet, strip, plate are defined in EN 485-1.

For the purposes of this standard, the following definitions apply :

3.1 raised pattern

Geometrical modification of one side of the surface of a flat rolled product obtained by submitting such product to a final rolling operation using a specially prepared roll engraved with an appropriate pattern.

The raised pattern may be obtained either by cold-rolling or hot-rolling.

3.2 nominal thickness

Thickness of the product outside the raised areas. It does not include the height of the raised pattern.

3.3 pattern types

The most common patterns and their standard designations are shown in Figures 1 to 5 (pattern illustrations are about half actual size). However, other patterns and designations may exist.



Figure 1 : Two bar



Figure 2 : Five bar

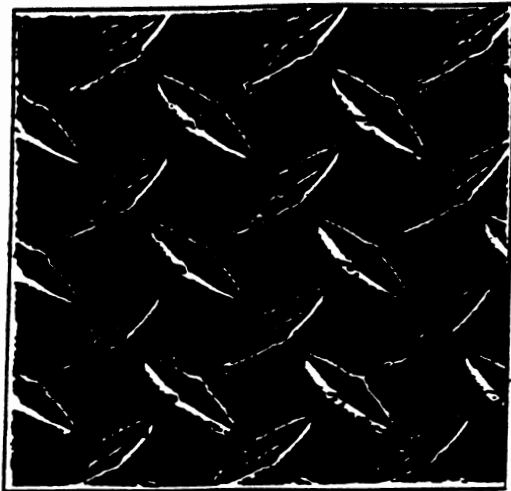


Figure 3 : Diamond

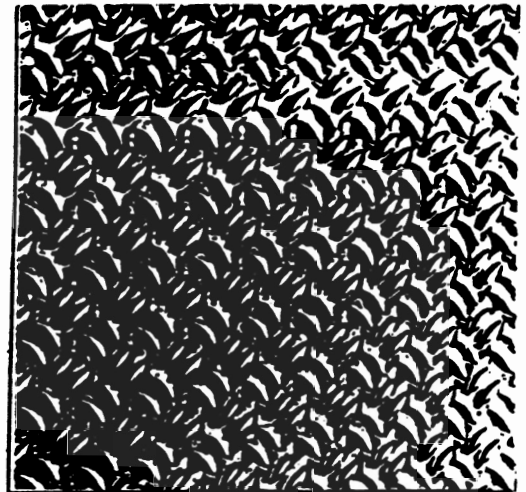


Figure 4 : Barley seed



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Figure 5 : Almond

4 Technical conditions for inspection and delivery

4.1 Orders or tenders

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

a) the form and type of product :

- the form of the product (sheet, strip, plate) ;
- the type of pattern by reference to a drawing or a designation code agreed between producer and purchaser ;
- the designation of the aluminium or aluminium alloy in accordance with EN 573-3 ;
- the customer application ;

b) the metallurgical temper of the material for delivery in accordance with EN 515 ;

c) the number of this European Standard or a specification number, or where none exists, the properties agreed between producer and purchaser ;

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

- nominal thickness (not including the height of the raised pattern) ;
- width ;
- length (in the rolling direction) of the sheet.

NOTE : Unless otherwise agreed, the length is the largest dimension.

- internal and external diameters of the coil ;

e) quantity :

- mass or number of pieces ;
- tolerances on quantity if required ;

f) any requirements for inspection documents ;

g) any special requirements agreed between producer and purchaser :

- marking of products ;
- reference to drawings, etc.

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4.2 Freedom from defects

The product shall be free from defects prejudicial to its suitable and proper use.

Whilst an operation designed to mask a fault is not permitted, the elimination of a superficial fault is permissible, provided that the dimensional tolerances and material properties continue to meet the specifications.

NOTE : Reverse side can show ripples, due to partial penetration of pattern during levelling.

4.3 Other conditions

All other provisions of EN 485-1 shall apply except for mechanical properties and tolerances on dimensions and form which are specified respectively in clauses 5 and 6 below.

5 Mechanical properties

5.1 Tensile test

The products shall conform to the tensile properties specified in Table 1.

The selection, preparation and number of specimens and test-pieces, are specified in EN 485-1.

The test shall be carried out in accordance with EN 10002-1, and the following additional requirements :

- normally the test-pieces shall be taken with their length transverse (or long transverse) to the principal direction of rolling. If the width of the product is less than 300 mm, then test in the longitudinal direction is permitted. In both cases the mechanical property limits specified in Table 1 shall apply ;

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Table 1 : Mechanical properties

Alloy	Temper	Specified thickness <i>t</i> mm		R_m MPa		$R_{p0,2}$ MPa		Elongation, min. %		Recommended min. bend radius at 90°
		over	up to	min.	max.	min.	max.	A 50mm	A	
EN AW-1050A [Al 99,5]	F	≥ 1,2	20,0	-	-	-	-	-	-	-
	H244	≥ 1,2	1,5	105	145	75	-	2	-	1 <i>t</i>
		1,5	3,0	105	145	75	-	3	-	1,5 <i>t</i>
		3,0	6,0	105	145	75	-	4	-	2 <i>t</i>
		6,0	20,0	105	145	75	-	5	8	-
EN AW-3003 [Al Mn1Cu]	F	≥ 1,2	20,0	-	-	-	-	-	-	-
	H224	≥ 1,2	1,5	120	180	80	-	3	-	1 <i>t</i>
		1,5	3,0	120	180	80	-	4	-	1,25 <i>t</i>
		3,0	6,0	120	180	80	-	5	-	2 <i>t</i>
		6,0	20,0	120	180	80	-	6	10	-
	H244	≥ 1,2	1,5	140	200	115	-	2	-	1 <i>t</i>
		1,5	3,0	140	200	115	-	3	-	1,25 <i>t</i>
		3,0	6,0	140	200	115	-	4	-	2 <i>t</i>
6,0		20,0	140	200	110	-	5	7	-	
EN AW-3103 [Al Mn1]	F	≥ 1,2	20,0	-	-	-	-	-	-	-
	H224	≥ 1,2	1,5	115	175	75	-	3	-	1,25 <i>t</i>
		1,5	3,0	115	175	75	-	4	-	1,5 <i>t</i>
		3,0	6,0	115	175	75	-	5	-	2,5 <i>t</i>
		6,0	20,0	115	175	75	-	6	10	-
	H244	≥ 1,2	1,5	140	195	110	-	2	-	1,25 <i>t</i>
		1,5	3,0	140	195	110	-	3	-	1,5 <i>t</i>
		3,0	6,0	140	195	110	-	4	-	2,5 <i>t</i>
6,0		20,0	140	195	110	-	5	7	-	
EN AW-5052 [Al Mg2,5]	F	≥ 1,2	20,0	-	-	-	-	-	-	-
	H114	≥ 1,2	1,5	170	240	65	-	8	-	1 <i>t</i>
		1,5	3,0	170	240	65	-	10	-	1 <i>t</i>
		3,0	6,0	170	240	65	-	12	-	1,75 <i>t</i>
		6,0	20,0	165	240	65	-	14	15	-
	H224	≥ 1,2	1,5	210	270	130	-	4	-	1,5 <i>t</i>
		1,5	3,0	210	270	130	-	6	-	2 <i>t</i>
		3,0	6,0	210	270	130	-	8	-	2 <i>t</i>
		6,0	20,0	210	270	130	-	9	10	-
	H244	≥ 1,2	1,5	230	290	150	-	2	-	2 <i>t</i>
		1,5	3,0	230	290	150	-	3	-	2,5 <i>t</i>
		3,0	6,0	230	290	150	-	4	-	3 <i>t</i>
6,0		20,0	230	290	150	-	6	7	-	
EN AW-5754 [Al Mg3]	F	≥ 1,2	20,0	-	-	-	-	-	-	-
	H114	≥ 1,2	1,5	190	260	80	-	8	-	1,5 <i>t</i>
		1,5	3,0	190	260	80	-	10	-	2 <i>t</i>
		3,0	6,0	190	260	80	-	12	-	2 <i>t</i>
		6,0	20,0	190	260	80	-	14	15	-
	H224	≥ 1,2	1,5	220	275	130	-	4	-	2 <i>t</i>
		1,5	3,0	220	275	130	-	6	-	2,5 <i>t</i>
		3,0	6,0	220	275	130	-	8	-	2,5 <i>t</i>
		6,0	20,0	220	275	130	-	9	10	-
	H244	≥ 1,2	1,5	240	295	160	-	2	-	2,5 <i>t</i>
		1,5	3,0	240	295	160	-	3	-	3 <i>t</i>
		3,0	6,0	240	295	160	-	4	-	3,5 <i>t</i>
6,0		20,0	240	295	160	-	6	7	-	

(to be continued)