
5`i a]b]^[b`Ui a]b]Yj Y`n`]]bY!`D`c Yj]bUn`fY]Yb]a]`j ncfW]!`GdYWZ_UWY

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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ICS:

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Aluminijski izdelki

Aluminium products

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English Version

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This European Standard was approved by CEN on 23 May 2007.

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

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Foreword

This document (EN 1386:2007) 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of an identical text or by endorsement, at the latest by January 2008, and conflicting national standards shall be withdrawn at the latest by January 2008.

This document supersedes EN 1386:1996.

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC 132/WG 7 "Sheets, strips and plates" to revise EN 1386:1996.

The following changes have been made:

Introduction : added

Clause 1: References to EN 485-1 and EN 573-3 have been deleted

Clause 2 – Normative references: Updated

Clause 4 – Pattern types: "Barley seed" deleted and replaced by "Rice grain" (Figure 4)

Clause 5 – Selection of materials: Added

Clause 6: Modified <https://standards.iteh.ai/catalog/standards/sist/034d212f-93fd-4560-a509-deb2e7bd62bd/sist-en-1386-2007>

Clause 7: Modified and in Table 1, alloy EN AW-5026 and footnote for EN AW-7072 added

Clause 8: Added

Clause 9: Added

Clause 10: Added

Annex B (informative): Added

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Introduction

It is essential that aluminium alloy semi-finished rolled products intended for use floor plating, e.g. in vehicle construction, shipbuilding and metallic structures satisfy a certain number of specific technical conditions for inspection and delivery as well as specific mechanical and other properties which distinguish them from similar semi-finished products for general applications.

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1 Scope

This document specifies the technical conditions of inspection and delivery, the mechanical properties, the tolerances on dimensions and form of rolled semi-finished aluminium alloy products intended for floor plating, e.g. in vehicle construction, shipbuilding and metallic structures with a raised pattern on one side and a smooth surface on the other side.

It applies to sheets, strips and plates from 1,2 mm up to 20 mm in thickness and up to and including 2 500 mm in width, and to sheets and plates up to 14 000 mm in length.

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

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 at ambient temperature*

EN 10204, *Metallic products — Types of inspection documents*

EN 12258-1:1998, *Aluminium and aluminium alloys — Terms and definitions — Part 1: General terms*

EN ISO 7438, *Metallic materials — Bend test (ISO 7438:2005)*

ASTM G66, *Standard Test Method for Visual Assessment of Exfoliation Corrosion Susceptibility of 5XXX Series Aluminium Alloys (ASSET Test)*

ASTM G67, *Standard Test Method for Determining the Susceptibility to Intergranular Corrosion of 5XXX Series Aluminium Alloys by Mass Loss After Exposure to Nitric Acid (NAMLT Test)*

ASTM B928, *Standard Specification for High Magnesium Aluminium Alloy Sheet and Plate for Marine Service*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12258-1:1998 and the following 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

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

3.2

nominal thickness

thickness of the product outside the raised areas

NOTE It does not include the height of the raised pattern.

3.3

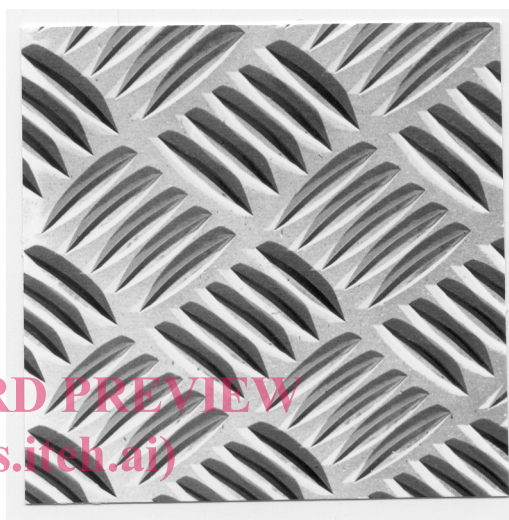
order document

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

NOTE An order document can be an order of the purchaser confirmed by the supplier or a quotation of the supplier confirmed by the purchaser.

4 Pattern types

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



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Figure 1 — Two bar

Figure 2 — Five bar

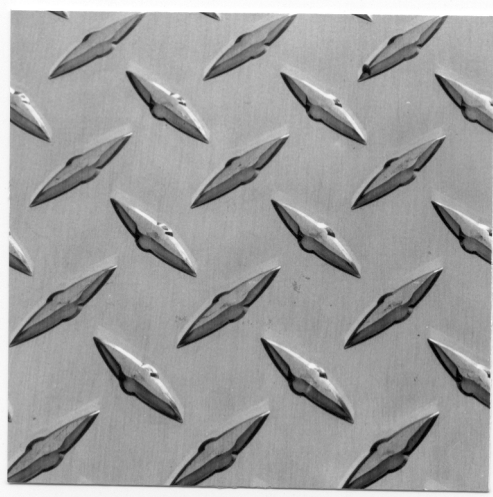


Figure 3 — Diamond

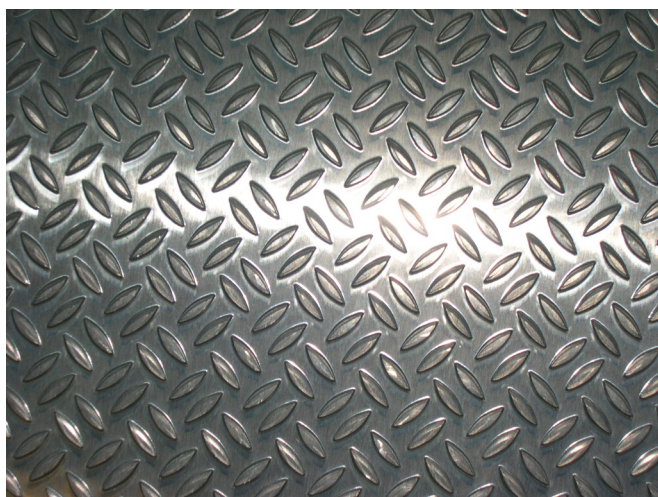


Figure 4 — Rice grain



Figure 5 —Almond

5 Selection of materials

Appropriate material of the series 1000 (with a minimum aluminium content of 99,5 %), 3000, 5000, 6000 and 7000 can be used. Their chemical composition shall conform to EN 573-3.

The following alloys are recommended for use as floor plating, e.g. in a vehicle construction, shipbuilding and metallic structures: EN AW-1050A, EN AW-3003, EN AW-3103, EN AW-5026, AW-5052, EN AW-5083, EN AW-5086, EN AW-5754, EN AW-6061, EN AW-6082 and EN AW-7020.

NOTE For marine application with EN AW-5083 and EN AW-5086 in the H116 temper, 7.6 applies.

6 Order information

The relevant requirements of EN 485-1 shall apply, with the following additional provisions:

- a) the order document shall refer to the present document;
- b) the order document should specify the type of the inspection document according to EN 10204 (see 8.2);
- c) the order document shall specify mechanical and other relevant properties, if they differ from those specified in the present standard or if materials other than those recommended in the present document are used;
- d) the order document should specify the height of the raised pattern (see 7.7.1) and the tolerances on thickness applicable (see 7.7.2).

7 Requirements

7.1 General

With special regard to the final use, the supplier and the purchaser shall take into account additional legal regulation and standards and the suitability of the material chosen.

7.2 Technical conditions for inspection and delivery

Unless otherwise specified in the present document or in the order document, the relevant requirements of EN 485-1 shall apply.

7.3 Surface conditions

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.

7.4 Mechanical properties

For alloys given in Clause 5, the mechanical properties at ambient temperature shall conform to Table 1. Higher mechanical properties can be agreed upon between supplier and purchaser.

The mechanical properties at ambient temperature shall be measured according to EN 10002-1.

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Table 1 — Mechanical properties

Alloy	Temper	Specified thickness t 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	$\geq 1,2$	20,0	-	-	-	-	-	-	-
	H244	$\geq 1,2$	1,5	105	145	75	-	2	-	1 t
		1,5	3,0	105	145	75	-	3	-	1,5 t
		3,0	6,0	105	145	75	-	4	-	2 t
		6,0	20,0	105	145	75	-	5	8	-
EN AW-3003 [Al Mn1Cu]	F	$\geq 1,2$	20,0	-	-	-	-	-	-	-
	H224	$\geq 1,2$	1,5	120	180	80	-	3	-	1 t
		1,5	3,0	120	180	80	-	4	-	1,25 t
		3,0	6,0	120	180	80	-	5	-	2 t
		6,0	20,0	120	180	80	-	6	10	-
	H244	$\geq 1,2$	1,5	140	200	115	-	2	-	1 t
		1,5	3,0	140	200	115	-	3	-	1,25 t
		3,0	6,0	140	200	115	-	4	-	2 t
		6,0	20,0	140	200	110	-	5	7	-
	F	$\geq 1,2$	20,0	-	-	-	-	-	-	-
EN AW-3103 [Al Mn1]	H224	$\geq 1,2$	1,5	115	175	75	-	3	-	1,25 t
		1,5	3,0	115	175	75	-	4	-	1,5 t
		3,0	6,0	115	175	75	-	5	-	2,5 t
		6,0	20,0	115	175	75	-	6	10	-
	H244	$\geq 1,2$	1,5	140	195	110	-	2	-	1,25 t
		1,5	3,0	140	195	110	-	3	-	1,5 t
		3,0	6,0	140	195	110	-	4	-	2,5 t
		6,0	20,0	140	195	110	-	5	7	-
	O/H111	≥ 3	6	200	-	120	-	5	-	-
		6	20	200	-	120	-	-	6	-