



SLOVENSKI STANDARD
oSIST prEN 683-2:2023
01-junij-2023

**Aluminij in aluminijeve zlitine - Hladno valjani polizdelki za toplotne izmenjevalnike
- 2. del: Mehanske lastnosti**

Aluminium and aluminium alloys - Finstock - Part 2: Mechanical properties

Aluminium und Aluminiumlegierungen - Vormaterial für Wärmeaustauscher (Finstock) -
Teil 2: Mechanische Eigenschaften

Aluminium et alliages d'aluminium - Bandes pour échangeurs thermiques - Partie 2 :
Caractéristiques mécaniques

Ta slovenski standard je istoveten z: prEN 683-2

ICS:

77.150.10 Alumijski izdelki Aluminium products

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EUROPEAN STANDARD
NORME EUROPÉENNE
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ICS

Will supersede EN 683-2:2006

English Version

Aluminium and aluminium alloys - Finstock - Part 2: Mechanical properties

Aluminium et alliages d'aluminium - Bandes pour
échangeurs thermiques - Partie 2 : Caractéristiques
mécaniques

Aluminium und Aluminiumlegierungen - Vormaterial
für Wärmeaustauscher (Finstock) - Teil 2: Mechanische
Eigenschaften

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

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European foreword

This document (prEN 683-2:2023) 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 683-2:2006.

The EN 683 series comprises the following parts under the general title “Aluminium and aluminium alloys — Finstock”:

- *Part 1: Technical conditions for inspection and delivery*
- *Part 2: Mechanical properties*
- *Part 3: Tolerances on dimensions and form*

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prEN 683-2:2023 (E)**1 Scope**

This document specifies the mechanical properties of wrought aluminium and wrought aluminium alloy finstock.

The chemical composition limits of these materials are specified in EN 573-3, unless otherwise agreed between supplier and purchaser.

The designations of wrought aluminium and wrought aluminium alloys and the temper designations used in this document are specified in EN 573-3, and the temper designations are defined in EN 515.

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 683-1, *Aluminium and aluminium alloys - Finstock - Part 1: Technical conditions for inspection and delivery*

EN 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test at ambient temperature*

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.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Tensile testing

The selection and number of specimens and test pieces shall be as specified in EN 683-1.

Tensile testing shall be carried out according to EN 10002-1 noting the following:

- applies to gauges between 60 μm and 400 μm ;
- test pieces shall be either parallel-sided (see Figure 1) or with shoulders and a reduced parallel section.

Parallel sided test pieces shall be prepared using a double- bladed cutter (see Figure 2) or a precision ground sample shear of “punch and die” construction.

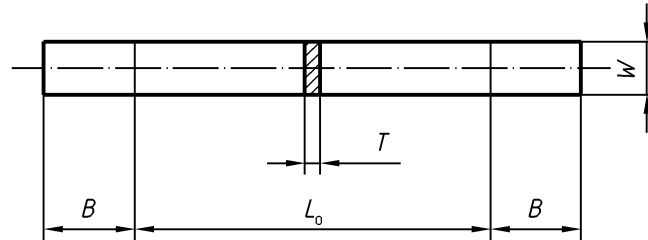
Shouldered test pieces shall have a similar sample shear or can be machined in packs using a milling-type cutter.

Parallel sided test pieces shall have a width of $(15 \pm 0,1)$ mm and a gauge length of (50 ± 1) mm or (100 ± 1) mm.

Shouldered test pieces shall be in accordance with EN 10002-1.

During the part of the test to determine proof stress, the strain rate shall not exceed 10 MPa/s. The strain rate can then be increased until rupture but it shall not exceed 50 % of the gauge length per minute.

Considering the difficulty in marking thin gauge material, the gauge length may be measured by the distance between the grips of the testing machine. The elongation is then determined from the difference in the distance between the grips before testing and at fracture, or by direct reading from the load vs crosshead displacement diagram when available. This provision only applies to parallel-sided test pieces.



Key

- L_0 gauge length = (50 ± 1) mm or (100 ± 1) mm
- W width = $(15 \pm 0,1)$ mm
- T thickness of strip
- B length of grip section = minimum value 25 mm

Figure 1 — Parallel sided test piece

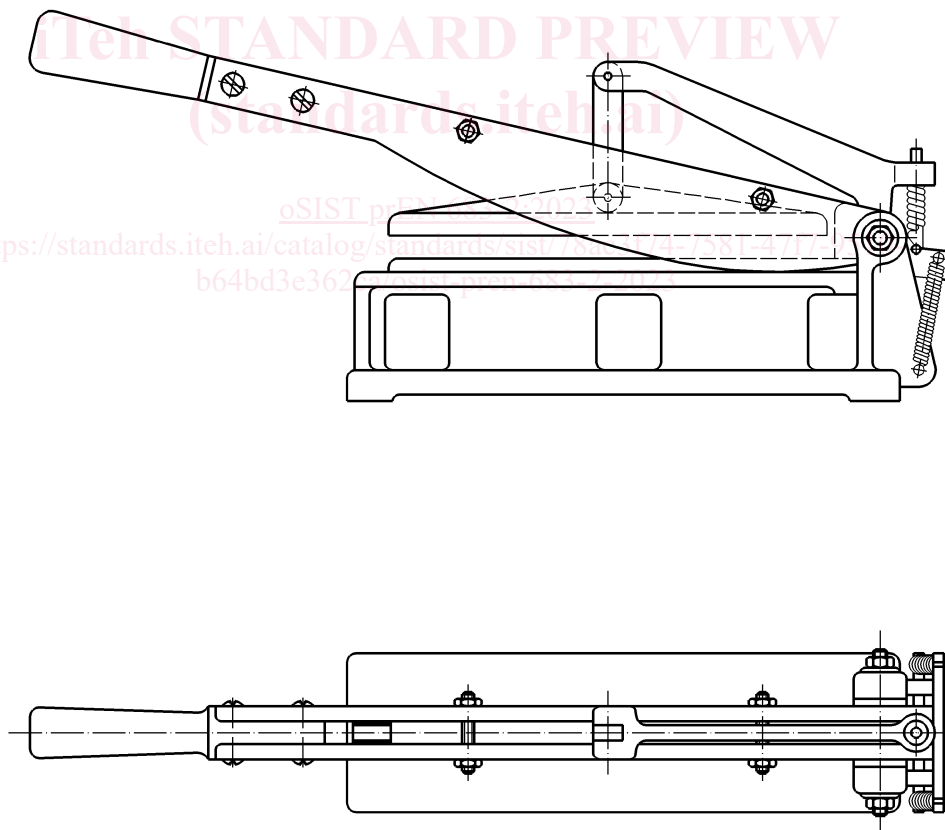


Figure 2 — Example of double-bladed cutter

5 Mechanical properties

Mechanical property limits for aluminium and aluminium alloys for finstock are specified in Table 1 and Table 2. For the elongation measurement, two different gauge lengths may be used. The choice of the gauge length used, either 50 mm or 100 mm, or according to EN 10002-1 and the form of the specimen (i.e. parallel, or with shoulders) shall be at the discretion of the supplier unless otherwise agreed; nevertheless, the supplier shall inform the purchaser of the length, and of the specimen used.

6 Rounding of test results

Test results shall be rounded in accordance with the rounding rules given in Annex A.

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Table 1 — Mechanical properties for finstock (H14, H16, H18, H19)

Material	Gauge range		Temper													
			H14			H16			H18			H19				
	Yield strength $R_{p0,2}$	Tensile strength R_m	Elongation A_{50mm} or A_{100mm}	Yield strength $R_{p0,2}$	Tensile strength R_m	Elongation A_{50mm} or A_{100mm}	Yield strength $R_{p0,2}$	Tensile strength R_m	Elongation A_{50mm} or A_{100mm}	Yield strength $R_{p0,2}$	Tensile strength R_m	Elongation A_{50mm} or A_{100mm}	Yield strength $R_{p0,2}$	Tensile strength R_m	Elongation A_{50mm} or A_{100mm}	
																MPa
Over	Up to and including	min.	min.	max.	min.	min.	min.	max.	min.	min.	min.	min.	min.	min.	min.	
EN AW-1050A [Al 99,5]	≥ 60	140	85	105	145	1	100	120	160	1	120	135	1	130	155	1
	140	200	85	105	145	1	100	120	160	1	120	135	1	130	155	1
	200	400	85	105	145	2	100	120	160	1	120	135	1	130	155	1
EN AW-1100 [Al 99,0Cu]	≥ 60	140	100	110	160	1	115	125	175	1	135	145	1	160	180	1
	140	200	100	110	160	1	115	125	175	1	135	145	1	160	180	1
	200	400	100	110	160	1	115	125	175	1	135	145	1	160	180	1
EN AW-1200 [Al 99,0]	≥ 60	140	95	105	155	1	110	120	170	1	130	140	1	150	170	1
	140	200	95	105	155	1	110	120	170	1	130	140	1	150	170	1
	200	400	95	105	155	1	110	120	170	1	130	140	1	150	170	1
EN AW-3003 [Al Mn1Cu]	≥ 60	140	120	145	185	1	145	165	205	1	160	190	1	180	210	0,5
	140	200	120	145	185	1	145	165	205	1	160	190	1	180	210	0,5
	200	400	120	145	185	1	145	165	205	1	160	190	1	180	210	0,5

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EN AW-3103	≥ 60	140	115	140	180	1	140	160	200	1	160	185	1	180	200	0,5
[Al Mn1]	140	200	115	140	180	1	140	160	200	1	160	185	1	180	200	0,5
	200	400	115	140	180	1	140	160	200	1	160	185	1	180	200	0,5
EN AW-5005	≥ 60	140	125	145	190	1	-	-	-	-	165	185	0,5	-	-	-
[Al Mn1(B)]	140	200	125	145	190	1	-	-	-	-	165	185	0,5	-	-	-
	200	400	125	145	190	-	-	-	-	-	165	185	0,5	-	-	-
EN AW-6063	≥ 60	140	110	120	170	2	-	-	-	-	160	180	1	180	200	1
[Al Mn0,7Si]	140	200	110	120	170	2	-	-	-	-	160	180	1	180	200	1
	200	400	110	120	170	2	-	-	-	-	160	180	1	180	200	1
EN AW-8006	≥ 60	140	-	-	-	-	-	-	-	-	170	190	2	-	-	-
[Al Fe1,5Mn]	140	200	-	-	-	-	-	-	-	-	170	190	2	-	-	-
	200	400	-	-	-	-	-	-	-	-	170	190	3	-	-	-
EN AW-8011A	≥ 60	140	110	120	170	1	130	140	190	1	145	160	1	160	180	1
[Al FeSi(A)]	140	200	110	120	170	1	130	140	190	1	145	160	1	160	180	1
	200	400	110	120	170	1	130	140	190	1	145	160	1	160	180	1
EN AW-8079	≥ 60	140	-	-	-	-	-	-	-	-	135	150	1	155	170	1
[Al Fe1Si]	140	200	-	-	-	-	-	-	-	-	135	150	1	155	170	1
	200	400	-	-	-	-	-	-	-	-	135	150	2	155	170	2