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Aluminium och aluminiumlegeringar – Strängpressad stång, rör och profiler – Del 2: Mekaniska egenskaper

Aluminium and aluminium alloys – Extruded rod/bar, tube and profiles – Part 2: Mechanical properties



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Denna standard ersätter SS-EN 755-2:2013, utgåva 3.

The European Standard EN 755-2:2016 has the status of a Swedish Standard. This document contains the official English version of EN 755-2:2016.

This standard supersedes the Swedish Standard SS-EN 755-2:2013, edition 3.

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Denna standard är framtagen av kommittén för Lättmetaller, SIS/TK 129.

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EUROPEAN STANDARD

EN 755-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2016

ICS 77.150.10

Supersedes EN 755-2:2013

English Version

Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 2: Mechanical properties

Aluminium et alliages d'aluminium - Barres, tubes et profilés filés - Partie 2 : Caractéristiques mécaniques

Aluminium und Aluminiumlegierungen - Stranggepresste Stangen, Rohre und Profile - Teil 2: Mechanische Eigenschaften

This European Standard was approved by CEN on 10 January 2016.

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 CEN-CENELEC Management Centre or to any CEN member.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 755-2:2016) 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of an identical text or by endorsement, at the latest by September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 755-2:2013.

CEN/TC 132 decided to revise EN 755-2:2013 as follows:

- reorganization of the list of the tables of mechanical properties of the relevant aluminium and aluminium alloys;
- addition of the alloy EN AW-2618A [AlCu2Mg1,5Ni] in a new Table 9;
- correction of the alloy EN AW-6026 [Al MgSiBi] in a new Table 36;
- addition of the alloy EN AW-6056 [Al Si1MgCuMn] in a new Table 38.
- Modification of the Alloy EN AW-6060 [Al MgSi] in Table 39: Extruded profile T6 and T66 wall thickness-border from 3 mm to 5 mm;
- Modification of the Alloy EN AW-6063 [Al Mg0,7Si] in Table 45: Extruded profile T5 wall thickness-border from 3 mm to 10 mm;
- The former Table 26 was moved, and is now Table 48.

EN 755, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles* comprises the following parts:

- *Part 1: Technical conditions for inspection and delivery*
- *Part 2: Mechanical properties*
- *Part 3: Round bars, tolerances on dimensions and form*
- *Part 4: Square bars, tolerances on dimensions and form*
- *Part 5: Rectangular bars, tolerances on dimensions and form*
- *Part 6: Hexagonal bars, tolerances on dimensions and form*
- *Part 7: Seamless tubes, tolerances on dimensions and form*
- *Part 8: Porthole tubes, tolerances on dimensions and form*
- *Part 9: Profiles, tolerances on dimensions and form*

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1 Scope

This European Standard specifies the mechanical property limits resulting from tensile testing applicable to aluminium and aluminium alloy extruded rod/bar, tube and profile.

Technical conditions for inspection and delivery, including product and testing requirements, are specified in EN 755-1. Temper designations are defined in EN 515. The chemical composition limits for these materials are given in EN 573-3.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 755-1, *Aluminium and aluminium alloys- Extruded rod/bar, tube and profiles - Part 1: Technical conditions for inspection and delivery*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

3 Mechanical property limits

3.1 General

The mechanical properties shall be in conformity with those specified in Table 1 to Table 61 or those agreed upon between supplier and purchaser and stated in the order document.

Table 1 to Table 61 contain limits of mechanical property values obtained by tensile testing according to EN ISO 6892-1 after sampling and test piece preparation according to EN 755-1.

NOTE The mechanical properties refer to test pieces taken in the longitudinal direction. Mechanical properties of test pieces taken in other directions can differ from those for the longitudinal direction quoted in this standard.

Brinell hardness values given in Table 1 to Table 61 expressed as HBW values are for information only.

3.2 Elongation

If not otherwise agreed, the A value shall be used.

The A value for elongation is the % elongation measured over a gauge length of $5,65\sqrt{S_0}$ (where S_0 is the initial cross-sectional area of the test-piece), and expressed in percent.

For certain products the supplier may choose (if not otherwise specified in the order documents) to use the elongation based on $A_{50\text{mm}}$. Consequently, values for the $A_{50\text{mm}}$ are included in the following tables.

The $A_{50\text{mm}}$ value is the elongation measured over a gauge length of 50 mm and expressed in percent.

Test pieces and their location in the specimen are given in EN 755-1.

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3.4 Tables of mechanical properties

Table 1 — Aluminium EN AW-1050A [Al 99,5]

Extruded rod/bar									
Temper	Dimensions mm		R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
	D^a	S^b	min.	max.	min.	max.	min.	min.	
F ^c , H112	all	all	60	-	20	-	25	23	20
O, H111	all	all	60	95	20	-	25	23	20
Extruded tube									
Temper	Wall thickness t mm		R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
	min.	max.	min.	max.	min.	max.	min.	min.	
F ^c , H112	all	all	60		20	-	25	23	20
O, H111	all	all	60	95	20	-	25	23	20
Extruded profile									
Temper	Wall thickness t mm		R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
	min.	max.	min.	max.	min.	max.	min.	min.	
F ^c , H112	all	all	60		20	-	25	23	20
^a D = Diameter for round bar. ^b S = Width across flats for square and hexagonal bar, thickness for rectangular bar. ^c F Temper: property values are for information only.									

Table 2 — Aluminium EN AW-1070A [Al 99,7]

Extruded rod/bar									
Temper	Dimensions mm		R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
	D^a	S^b	min.	max.	min.	max.	min.	min.	
F ^c , H112	all	all	60	-	23		25	23	18
Extruded tube									
Not specified									
Extruded profile									
Not specified									
^a D = Diameter for round bar. ^b S = Width across flats for square and hexagonal bar, thickness for rectangular bar. ^c F Temper: property values are for information only.									