
5`i a]b]^[b`Ui a]b]^[Y Y`n`j]bY!`J`Y YbUy]WU!`&`XY.`A Y Ubg_Y`Ug]bcg]j

Aluminium and aluminium alloys - Drawn wire - Part 2: Mechanical properties

Aluminium und Aluminiumlegierungen - Gezogene Drahte - Teil 2: Mechanische Eigenschaften

Aluminium et alliages d'aluminium - Fil tir - Partie 2: Caractristiques mcaniques

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Ta slovenski standard je istoveten z: EN 1301-2:1997

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ICS:

77.150.10 Alumijski izdelki Aluminium products

SIST EN 1301-2:1998 **en**

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English version

Aluminium and aluminium alloys - Drawn wire - Part 2: Mechanical properties

Aluminium et alliages d'aluminium - Fil étiré
- Partie 2: Caractéristiques mécaniques

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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of an identical text or by endorsement, at the latest by January 1998, and conflicting national standards shall be withdrawn at the latest by January 1998.

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC 132/WG 4 "Wires and drawing stock" to prepare the following standard :

EN 1301-2 Aluminium and aluminium alloys - Drawn wire - Part 2 : Mechanical properties

This standard is a part of a set of three standards. The other standards deal with :

EN 1301-1 Aluminium and aluminium alloys - Drawn wire - Part 1 : Technical conditions for inspection and delivery

EN 1301-3 Aluminium and aluminium alloys - Drawn wire - Part 3 : Tolerances on dimensions

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According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, 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 Part of EN 1301 specifies the mechanical properties of aluminium and aluminium alloy drawn wire of general engineering applications including rivet manufacture (except aeronautical rivets).

It applies to drawn wires, except for electrical or welding purposes.

It does not apply to drawing stock.

The designation of aluminium and aluminium alloys, their chemical composition and the temper designations used in this standard are in accordance with EN 573-3 and EN 515 respectively.

These aluminium and aluminium alloys correspond to the alloys produced in large quantities in Europe (class A as defined in 573-4).

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 515	Aluminium and aluminium alloys - Wrought products - Temper designations SIST EN 1301-2:1998
EN 573-3	https://standards.iteh.ai/catalog/standards/sist/d85abc29-17d8-43d3-8dd7-315407b00000/en-573-3-1998 Aluminium and aluminium alloys - Chemical composition and forms of wrought products - Part 3 : Chemical composition
EN 573-4	Aluminium and aluminium alloys - Chemical composition and forms of wrought products - Part 4 : Forms of products
EN 10002-1	Metallic materials - Tensile testing - Part 1 : Method of test (at ambient temperature)
EN 1301-1	Aluminium and aluminium alloys - Drawn wire - Part 1 : Technical conditions for inspection and delivery

3 Tensile test

The conditions for the sampling shall be in accordance with EN 1301-1.

The testing conditions specified in EN 10002-1 shall apply together with the following additional conditions :

- the full section test pieces shall be used ;
- the elongation shall be measured on a reference length of 100 mm.

Tensile strength shall conform to tables 1 to 6.

NOTE : Typical value for proofstress and elongation, are given, for information only.

Tensile strength values shall be rounded in accordance with annex A:

For rivet wire in non heat treatable alloys delivered in H13 temper the mechanical properties shall be determined in the temper of delivery.

For rivet wire in heat treatable alloys delivered in H13 temper, the mechanical properties shall be determined :

- in the delivered temper H13 ;

- and also in tempers :

a) T42 for EN AW-2017A, EN AW-2117 and EN AW-2024 alloys ;

b) T62 for EN AW-2014A, EN AW-6061 and EN AW-6082 and EN AW-7075 alloys.

In these cases the mechanical properties limits are those given for the corresponding T4 and T6 tempers.

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Table 1 : Series 1 000 (Al)
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Material designation	Temper	Diameter mm Including mm	R_m		$R_{p0,2}$ ¹⁾ MPa typical	Elongation ¹⁾ $A_{100\text{ mm}}$ %
			min.	max.		
EN AW-1098 [Al 99,98]	O	20	-	70	-	25
	H14	18	85	-	80	3
	H18	10	115	-	110	2
EN AW-1080A [Al 99,8 (A)]	O	20	-	80	-	35
	H14	18	90	-	85	5
	H18	10	120	-	115	3
EN AW-1070A [Al 99,7]	O	20	-	85	-	35
	H14	18	95	-	90	5
	H18	10	125	-	120	3
EN AW-1050A [Al 99,5]	O	20	-	95	-	35
	H14	18	100	-	95	5
	H16	15	120	-	115	3
	H18	10	140	-	135	3

1) These typical proof stress and elongation values quoted are for information only and will be influenced by the wire diameter and, particularly for the H1X tempers, the method of drawing.

Table 2 : Series 2 000 (Al Cu)

Material designation	Temper	Diameter <i>d</i> up to and including mm	R_m		$R_{p0,2}^{1)}$ MPa typical	Elongation ¹⁾ $A_{100\text{ mm}}$ %
			MPa			
			min.	max.		
EN AW-2011 [Al Cu6BiPb]	T3	18	310	-	295	6
	T8	18	370	-	310	4
EN AW-2014A [Al Cu4SiMg(A)]	H13 ²⁾	18	210	300	190	5
	T4	18	380	-	255	18
	T6	18	440	-	415	9
EN AW-2017A [Al Cu4MgSi(A)]	H13 ²⁾	18	210	300	190	5
	T4	18	380	-	255	18
EN AW-2117 [Al Cu2,5Mg]	H13 ²⁾	18	170	240	110	5
	T4	18	260	-	160	20
EN AW-2024 [Al Cu4Mg1]	H13 ²⁾	18	230	300	200	5
	T4	18	420	-	315	18

1) These typical proof stress and elongation values quoted are for information only and will be influence by the wire diameter and, particularly for the H1X tempers, the method of drawing.

2) Mechanical properties shall be also tested in T42 temper (EN AW-2017A, EN AW-2117 and EN AW-2024 alloys) or T62 temper (EN AW-2014A alloy); and those given for T4 or T6 temper as above shall apply.

Table 3: Series 3 000 (Al Mn)

Material designation	Temper	Diameter <i>d</i> up to and including mm	R_m		$R_{p0,2}^{1)}$ MPa typical	Elongation ¹⁾ $A_{100\text{ mm}}$ %
			MPa			
			min.	max.		
EN AW-3003 [Al Mn1Cu]	O	20	-	130	60	35
	H14	18	135	180	120	5
	H18	10	180	-	175	3
EN AW-3103 [Al Mn1]	O	20	-	130	60	35
	H14	18	135	180	120	5
	H18	10	170	-	165	3

1) These typical proof stress and elongation values quoted are information only and will be influenced by the wire diameter and, particularly for the H1X tempers, the method of drawing.

Table 4 : Series 5 000 (Al Mg)

Material designation	Temper	Diameter <i>d</i> up to and Including mm	R_m		$R_{p0,2}^{1)}$ MPa typical	Elongation ¹⁾ $A_{100\text{ mm}}$ % typical
			min.	max.		
EN AW-5051A [Al Mg ₂ (B)]	O	20	-	195	85	15
	H12	18	170	220	155	6
	H14	18	195	245	200	4
	H18	10	245	-	200	3
EN AW-5251 [Al Mg ₂]	O	20	-	215	95	15
	H14	18	215	265	220	4
	H18	10	265	-	270	3
EN AW-5052 [Al Mg _{2,5}]	O	20	-	225	100	15
	H14	18	225	275	225	4
	H18	10	275	-	275	3
	H32	18	190	240	145	11
	H34	15	215	265	195	8
	H38	10	260	-	245	5
EN AW-5154A [Al Mg _{3,5} (A)]	O	20	-	275	125	16
	H14	18	280	330	270	3
	H18	10	330	-	320	2
	H32	18	235	285	170	11
	H34	15	265	315	230	8
	H36	10	290	340	250	6
	H38	10	310	-	280	4
EN AW-5754 [Al Mg ₃]	O	20	-	250	110	16
	H12	18	230	280	200	6
	H14	18	255	305	250	3
	H18	10	305	-	300	2
	H32	18	220	270	160	11
	H34	15	245	295	210	8
	H38	10	290	-	260	4
	H38	10	290	-	260	4
EN AW-5019 [Al Mg ₅]	O	20	-	320	150	17
	H12	18	295	355	255	6
	H14	18	325	385	315	3
	H18	18	370	-	360	2
	H32	18	280	340	205	11
	H34	15	310	370	265	8
	H38	10	360	-	320	4

1) These typical proof stress and elongation values quoted are information only and will be strongly influenced by the wire diameter and, particularly for the H1X tempers, the method of drawing.