



BSI Standards Publication



## **Aluminium and aluminium alloys— Extruded rod/bar, tube and profiles**

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Part 2: Mechanical properties

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- Text example 1** — indicates added text (in green)
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This document is a PDF containing a Tracked Changes version of BS EN 755-2, which compares BS EN 755-2:2016 with BS EN 755-2:2013.

The original version of BS EN 755-2:2016, appended at the end of this document, should be considered the version of record for this publication.

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National foreword

This British Standard is the UK implementation of ~~EN 755-2:2013~~ EN 755-2:2016. It supersedes ~~BS EN 755-2:2008~~ BS EN 755-2:2013 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee NFE/35, Light metals and their alloys.

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EN 755-2

~~October 2013~~ March 2016

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Supersedes EN 755-2:~~2008~~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 ~~22 August 2013~~ 10 January 2016.

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COMITÉ EUROPÉEN DE NORMALISATION  
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## Foreword **European foreword**

This document (~~EN 755-2:2013~~ **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text or by endorsement, at the latest by ~~April 2014~~ **September 2016**, and conflicting national standards shall be withdrawn at the latest by ~~April 2014~~ **September 2016**.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.

~~CEN/TC 132 affirms its policy that if a patentee refuses to grant licences on standardized products under reasonable and not discriminatory conditions, this product will be removed from the corresponding document.~~

This document supersedes ~~EN 755-2:2008~~ **EN 755-2:2013**.

CEN/TC 132 decided to revise ~~EN 755-2:2008~~ **EN 755-2:2013** as follows:

- ~~— addition of the alloys EN AW-6026 and EN AW-6064A in new Tables 25 and 26;~~
- ~~— EN 10002-1 was replaced by EN ISO 6892-1;~~
- ~~— editorial corrections in Tables 7, 22, 47, 49, 54 and 59.~~
- 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 ~~comprises the following parts under the general title "~~*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*

According to the CEN-CENELEC Internal Regulations, the national standards ~~organisations~~ organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 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 5961 or those agreed upon between supplier and purchaser and stated in the order document.

Table 1 to Table 5961 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 5961 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		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b>  Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , 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		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b>  Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all		60		20	-	25	23	20
O, H111	all		60	95	20	-	25	23	20
Extruded profile									
<b>Temper</b>	<b>Wall thickness</b> $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b>  Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all		60		20	-	25	23	20
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> 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 <sup>c</sup> , H112	all	all	60	-	23		25	23	18
Extruded tube									
Not specified									
Extruded profile									
Not specified									
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

**Table 3 — Aluminium EN AW-1200 [Al 99,0]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50}$ <sub>mm</sub> %	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F <sup>c</sup> ,	all	all	75	-	25	-	20	18	23
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50}$ <sub>mm</sub> %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> ,	all	all	75	-	25		20	18	23
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50}$ <sub>mm</sub> %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> ,	all		75	-	25		20	18	23
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 4 — Aluminium EN AW-1350 [Al 99,5]**

Extruded rod/bar <sup>d</sup>									
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 <sup>c</sup> , H112	all	all	60	-	-	-	25	23	20
Extruded tube <sup>d</sup>									
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.	min.	
F <sup>c</sup> , H112	all		60	-	-	-	25	23	20
Extruded profile <sup>d</sup>									
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.	min.	
F <sup>c</sup> , H112	all		60	-	-	-	25	23	20

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> F Temper: property values are for information only.

<sup>d</sup> Electrical conductivity  $\gamma \geq 35,4$  MS/m.

**Table 5 — Alloy EN AW-2007 [Al Cu4PbMgMn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50}$ mm %	Hardness Typical value HBW
	$D^a$	$S^b$	min	max	min	max	min	min	
T4, T4510, T4511 <sup>c</sup>	$\leq 80$	$\leq 80$	37	-	25	-	8	6	95
	$80 < D \leq 200$	$80 < S \leq 200$	0	-	0	-	8	-	
	$200 < D \leq 250$	$200 < S \leq$	34	-	22	-	7	-	
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50}$ mm %	Hardness Typical value HBW
			min	max	min	max	min	min	
T4, T4510, T4511		$\leq 25$	37	-	25	-	8	6	95
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50}$ mm %	Hardness Typical value HBW
			min	max	min	max	min	min	
T4, T4510, T4511		$\leq 30$	37	-	25	-	8	6	95
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 6 — Alloy EN AW-2011 [Al Cu6BiPb] and Alloy EN AW-2011A [Al Cu6BiPb(A)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50}$ mm %	Hardness Typical value HBW
	$D^a$	$S^b$	min	max.	min.	max.	min	min	
T4 <sup>c</sup>	$\leq 200$	$\leq$	27	-	125	-	14	12	95
T6 <sup>c</sup>	$\leq 75$	$\leq 60$	31	-	230	-	8	6	110
	$75 < D \leq 200$	-	0	-	195	-	6	-	110
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50}$ mm %	Hardness Typical value HBW
			min	max.	min	max.	min	min	
T6 <sup>c</sup>		$\leq 25$	31	-	230	-	6	4	110
Extruded profile Not specified									
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 7 — Alloy EN AW-2014 [Al Cu4SiMg] and Alloy EN AW-2014A [Al Cu4SiMg(A)]**

Drawn 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.	
O, H111	≤ 200	≤ 200	-	25	-	135	12	10	45
T4, T4510, T4511	≤ 25	≤ 25	370	-	230	-	13	11	110
	25 < $D$ ≤ 75	25 < $S$ ≤ 75	410	-	270	-	12	-	110
	75 < $D$ ≤ 150	75 < $S$ ≤ 150	390	-	250	-	10	-	110
	150 < $D$ ≤ 200	150 < $S$ ≤ 200	350	-	230	-	8	-	110
T6, T6510, T6511	≤ 25	≤ 25	415	-	370	-	6	5	140
	25 < $D$ ≤ 75	25 < $S$ ≤ 75	460	-	415	-	7	-	140
	75 < $D$ ≤ 150	75 < $S$ ≤ 150	465	-	420	-	7	-	140
	150 < $D$ ≤ 200	150 < $S$ ≤ 200	430	-	350	-	6	-	140
	200 < $D$ ≤ 250	200 < $S$ ≤ 250	420	-	320	-	5	-	140
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max	min	max.	min.	min.	
O, H111		≤ 20	-	25	-	135	12	10	45
T4, T4510, T4511		≤ 20	370	-	230	-	11	10	110
T6, T6510, T6511		≤ 10	415	-	370	-	7	5	140
		10 < $t$ ≤ 40	450	-	400	-	6	4	140
Extruded profile <sup>c</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	ma	min.	max.	min.	min.	
O, H111		all	-	25	-	135	12	10	45
T4, T4510, T4511		≤ 25	370	-	230	-	11	10	110
		25 < $t$ ≤ 75	410	-	270	-	10	-	110
T6, T6510, T6511		≤ 25	415	-	370	-	7	5	140
		25 < $t$ ≤ 75	460	-	415	-	7	-	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> If a profile cross section is comprised of comprises different thicknesses which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									



**Table 8 — Alloy EN AW-2017A [Al Cu4MgSi(A)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0.2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value
	$D^a$	$S^b$	min.	max.	min.	max.			
O, H111	$\leq 200$	$\leq 200$	-	250	-	135	12	10	45
T4, T4510 , T4511 <sup>c</sup>	$\leq 25$	$\leq 25$	380	-	260	-	12	10	105
	$25 < D \leq 75$	$25 < S \leq 75$	400	-	270	-	10	-	105
	$75 < D \leq 150$	$75 < S \leq 150$	390	-	260	-	9	-	105
	$150 < D \leq 200$	$150 < S \leq 200$	370	-	240	-	8	-	105
	$200 < D \leq 250$	$200 < S \leq 250$	360	-	220	-	7	-	105
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0.2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value
			min.	max.	min.	max.			
O, H111		$\leq 20$	-	250	-	135	12	10	45
T4, T4510, T4511 <sup>c</sup>		$\leq 10$	380	-	260	-	12	10	105
		$10 < t \leq 75$	400	-	270	-	10	8	105
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0.2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value
			min.	max.	min.	max.			
T4, T4510,		$\leq 30$	380	-	260	-	10	8	105
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 9 — Alloy EN AW-20242618A [Al Cu4Mg1Cu2Mg1.5Ni]**

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.	
O, H111	$\leq 200$	$\leq 200$	-	250	-	135	12	10	45
T4,T4510, T4511 <sup>c</sup>	$\leq 25$	$\leq 25$	380	-	260	-	12	10	105
	$25 < D \leq 75$	$25 < S \leq 75$	400	-	270	-	10	-	105
	$75 < D \leq 150$	$75 < S \leq 150$	390	-	260	-	9	-	105
	$150 < D \leq 200$	$150 < S \leq 200$	370	-	240	-	8	-	105
	$200 < D \leq 250$	$200 < S \leq 250$	360	-	220	-	7	-	105
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.	min.	
O, H111	$\leq 20$		-	250	-	135	12	10	45
T4, T4510, T4511 <sup>c</sup>	$\leq 10$		380	-	260	-	12	10	105
	$10 < t \leq 75$		400	-	270	-	10	8	105
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.	min.	
T4, T4510, T4511 <sup>c</sup>	$\leq 30$		380	-	260	-	10	8	105
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardne s s</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T6, T6511	$D \leq 10$	$S \leq 10$	410	-	330	-	6	4	140
T6, T6511	$10 < D \leq 100$	$10 < S \leq 100$	420	-	360	-	7	5	145
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardne s s</b> Typical value HBW
			min.	max.	min.	max.			
T6, T6511		$\leq 10$	410	-	330	-	6	4	140
T6, T6511		$10 < t \leq 100$	420	-	360	-	7	5	145
Extruded profile <sup>c</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardne s s</b> Typical value HBW
			min.	max.	min.	max.			
T6, T6511		$\leq 10$	410	-	330	-	6	4	140
T6, T6511		$10 < t \leq 100$	420	-	360	-	7	5	145
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 10 — Alloy EN AW-2024 [Al Cu4Mg1]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	
O, H111	$\leq 200$	$\leq 200$	-	250	-	150	12	10	47
T3, T3510, T3511	$\leq 50$	$\leq 50$	450	-	310	-	8	6	120
	$50 < D \leq 100$	$50 < S \leq 100$	440	-	300	-	8	-	120
	$100 < D \leq 200$	$100 < S \leq 200$	420	-	280	-	8	-	120
	$200 < D \leq 250$	$200 < S \leq 250$	400	-	270	-	8	-	120
T8, T8510, T8511	$\leq 150$	$\leq 150$	455	-	380	-	5	4	130
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness Typical value
			min.	max.	min.	max.	% min.	% min.	
O, H111		$\leq 30$	-	250	-	150	12	10	47
T3, T3510, T3511		$\leq 30$	420	-	290	-	8	6	120
T8, T8510, T8511		$\leq 30$	455	-	380	-	5	4	130
Extruded profile <sup>c</sup>									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness Typical value HBW
			min.	max.	min.	max.	% min.	% min.	
O, H111		all	-	250	-	150	12	10	47
T3, T3510, T3511		$\leq 15$	395	-	290	-	8	6	120
		$15 < t \leq 50$	420	-	290	-	8	-	120
T8, T8510, T8511		$\leq 50$	455	-	380	-	5	4	130
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 1011 — Alloy EN AW-2030 [Al Cu4PbMg]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T4, T4510, T4511 <sup>c</sup>	$\leq 80$	$\leq 80$	370	-	250	-	8	6	115
	$80 < D \leq 200$	$80 < S \leq 200$	340	-	220	-	8	-	115
	$200 < D \leq 250$	$200 < S \leq 250$	330	-	210	-	7	-	115
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.			
T4, T4510, T4511 <sup>c</sup>		$\leq 25$	370	-	250	-	8	6	115
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.			
T4, T4510, T4511 <sup>c</sup>		$\leq 30$	370	-	250	-	8	6	115
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 11.12 — Alloy EN AW-3102 [Al Mn0,2]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	all	all	80	-	30	-	25	23	23
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112		all	80	-	30	-	25	23	23
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112		all	80	-	30	-	25	23	23
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

**Table 1213 — Alloy EN AW-3003 [Al Mn1Cu]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$  MPa		$R_{p0,2}$  MPa		$A$  % min.	$A_{50\text{ mm}}$  % min.	<b>Hardnes s</b>  Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	all	all	95	-	35	-	25	20	30
O, H111	all	all	95	135	35	-	25	20	30
Extruded tube									
Temper	Wall thickness $t$  mm	$R_m$  MPa		$R_{p0,2}$  MPa		$A$  % min.	$A_{50\text{ mm}}$  % min.	<b>Hardnes s</b>  Typical value HBW	
		min.	max.	min.	max.				
F <sup>c</sup> , H112	all	95	-	35	-	25	20	30	
O, H111	all	95	135	35	-	25	20	30	
Extruded profile									
Temper	Wall thickness $t$  mm	$R_m$  MPa		$R_{p0,2}$  MPa		$A$  % min.	$A_{50\text{ mm}}$  % min.	<b>Hardnes s</b>  Typical value	
		min.	max.	min.	max.				
F <sup>c</sup> , H112	all	95	-	35	-	25	20	30	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 13.14 — Alloy EN AW-3103 [Al Mn1]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardnes s</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.			
F c, H112	all	all	95	-	35	-	25	20	28
O, H111	all	all	95	135	35	-	25	20	28
Extruded tube									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW	
		min.	max.	min.	max.				
F c, H112	all	95	-	35	-	25	20	28	
O, H111	all	95	135	35	-	25	20	28	
Extruded profile									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardnes s</b> Typical value	
		min.	max.	min.	max.				
F c, H112	all	95	-	35	-	25	20	28	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									



**Table 1415 — Alloy EN AW-5005 [Al Mg1(B)] and Alloy EN AW-5005A [Al Mg1(C)]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	mm		MPa		MPa				
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	Typical value HBW
F <sup>c</sup> , H112	all	100	100	-	40	-	18	16	30
O, H111	≤ 80	≤ 60	100	150	40	-	18	16	30
Extruded tube									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	MPa		MPa				
		mm	min.	max.	min.	max.	% min.	% min.	Typical value HBW
F <sup>c</sup> , H112		all	100	-	40	-	18	16	30
O, H111		≤ 20	100	150	40	-	20	18	30
Extruded Profile									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	MPa		MPa				
		mm	min.	max.	min.	max.	% min.	% min.	Typical value HBW
F <sup>c</sup> , H112		all	100	-	40	-	18	16	30
O, H111		≤ 20	100	150	40	-	20	18	30
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 15 16 — Alloy EN AW-5019 [Al Mg5]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	≤ 200	≤ 200	250	-	110	-	14	12	65
O, H111	≤ 200	≤ 200	250	320	110	-	15	13	65
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112		≤ 30	250	-	110	-	14	12	65
O, H111		≤ 30	250	320	110	-	15	13	65
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112		≤ 30	250	-	110	-	14	12	65
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

**Table 1617 — Alloy EN AW-5049 [Al Mg2Mn0,8]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardne ss</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	all	all	180	-	80	-	15	13	50
Extruded tube									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardne ss</b> Typical value HBW	
		min.	max.	min.	max.				
F <sup>c</sup> , H112	all	180	-	80	-	15	13	50	
Extruded profile									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardne ss</b> Typical value HBW	
		min.	max.	min.	max.				
F <sup>c</sup> , H112	all	180	-	80	-	15	13	50	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 1718 — Alloy EN AW-5051A [Al Mg2]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	all	all	150	-	50	-	16	14	40
O, H111	all	all	150	200	50	-	18	16	40
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112	all		150	-	60	-	16	14	40
O, H111	all		150	200	60	-	18	16	40
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112	all		150	-	60	-	16	14	40

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> F Temper: property values are for information only.

**Table 1819 — Alloy EN AW-5251 [Al Mg2Mn0,3]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F $\epsilon$ , H112	all	all	160	-	60	-	16	14	45
O, H111	all	all	160	220	60	-	17	15	45
Extruded tube									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value	
		min.	max.	min.	max.	min.	min.		
F $\epsilon$ , H112	all	160	-	60	-	16	14	45	
O, H111	all	160	220	60	-	17	15	45	
Extruded profile									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value	
		min.	max.	min.	max.	min.	min.		
F $\epsilon$ , H112	all	160	-	60	-	16	14	45	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 1920 — Alloy EN AW-5052 [Al Mg2,5]**

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 <sup>c</sup> , H112	all	all	170	-	70	-	15	13	47
O, H111	all	all	170	230	70	-	17	15	45
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.	min.	
F <sup>c</sup> , H112	all		170	-	70	-	15	13	47
O, H111	all		170	230	70	-	17	15	45
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.	min.	
F <sup>c</sup> , H112	all		170	-	70	-	15	13	47
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	mm		MPa		MPa		%	%	Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all	all	170	-	70	-	15	13	47
O, H111	all	all	170	230	70	-	17	15	45
Extruded tube									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	MPa		MPa		%	%	Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all		170	-	70	-	15	13	47
O, H111	all		170	230	70	-	17	15	45
Extruded profile									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	MPa		MPa		%	%	Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all		170	-	70	-	15	13	47
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 2021 — Alloy EN AW-5154A [Al Mg3,5(A)]**

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 <sup>c</sup> , H112	≤ 200	≤ 200	200	-	85	-	16	14	55
O, H111	≤ 200	≤ 200	200	275	85	-	18	16	55
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.	min.	
F <sup>c</sup> , H112	≤ 25		200	-	85	-	16	14	55
O, H111	≤ 25		200	275	85	-	18	16	55
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.	min.	
F <sup>c</sup> , H112	≤ 25		200	-	85	-	16	14	55
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 21.22 — Alloy EN AW-5454 [Al Mg3Mn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	≤ 200	≤ 200	200	-	85	-	16	14	60
O, H111	≤ 200	≤ 200	200	275	85	-	18	16	60
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112	≤ 25		200	-	85	-	16	14	60
O, H111	≤ 25		200	275	85	-	18	16	60
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112	≤ 25		200	-	85	-	16	14	60
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									



**Table 2223 — Alloy EN AW-5754 [Al Mg3]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
	$D^a$	$S^b$	min.	max.	min.	max.			
F c, H112	$\leq 150$	$\leq 150$	180	-	80	-	14	12	47
	$150 < D \leq$	$150 < S \leq 250$	180	-	70	-	13	-	47
O, H111	$\leq 150$	$\leq 150$	180	250	80	-	17	15	45
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.			
F c, H112		$\leq 25$	180	-	80	-	14	12	47
O, H111		$\leq 25$	180	250	80	-	17	15	45
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.			
F c, H112		$\leq 25$	180	-	80	-	14	12	47
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

**Table 2324 — Alloy EN AW-5083 [Al Mg4,5Mn0,7]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	<b>Hardness</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	
F <sup>c</sup>	$\leq 200$	$\leq 200$	270	-	110	-	12	10	70
	$200 < D \leq 250$	$200 < S \leq 250$	260	-	100	-	12	-	70
O, H111	$\leq 200$	$\leq 200$	270	-	110	-	12	10	70
H112	$\leq 200$	$\leq 200$	270	-	125	-	12	10	70
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	<b>Hardness</b> Typical value
			min.	max.	min.	max.	% min.	% min.	
F <sup>c</sup>		all	270	-	110	-	12	10	70
O, H111		all	270	-	110	-	12	10	70
H112		all	270	-	125	-	12	10	70
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	<b>Hardness</b> Typical value
			min.	max.	min.	max.	% min.	% min.	
F <sup>c</sup>		all	270	-	110	-	12	10	70
H112		all	270	-	125	-	12	10	70
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

**Table 24** — Alloy EN AW-5086 [Al Mg4]

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 <sup>c</sup> , H112	≤ 250	≤ 250	240	-	95	-	12	10	65
O, H111	≤ 200	≤ 200	240	320	95	-	18	15	65
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.	min.	
F <sup>c</sup> , H112	all		240	-	95	-	12	10	65
O, H111	all		240	320	95	-	18	15	65
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.	min.	
F <sup>c</sup> , H112	all		240	-	95	-	12	10	65
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 25** — Alloy EN AW-6026 [Al MgSiBi]

Drawn rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	Typical value HBW
T6 <sup>c</sup>	≤ 80	≤ 80	370	-	300	-	8	6	95
T8 <sup>c</sup>	≤ 80	≤ 60	345	-	315	-	4	3	95
T9 <sup>c</sup>	≤ 80	≤ 60	360	-	330	-	4	3	95
<sup>a</sup> $D$ = Diameter for round bar <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar <sup>c</sup> Properties may be obtained by press quenching									

Table 26 — Alloy EN AW-6064A 6101A [Al Mg1SiBi] MgSi(A)]

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.	
T6, T6510, T6511 <sup>c</sup>	$\leq 140$	$\leq 140$	310	-	260	-	8	6	95
	$140 < D \leq 250$	$140 < S \leq 250$	260	-	240	-	8	6	90
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.	min.		
T6, T6510, T6511 <sup>c</sup>	$\leq 30$	310	-	260	-	8	6	90	
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.	min.		
T6, T6510, T6511 <sup>c</sup>	$\leq 40$	310	-	260	-	8	6	90	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Characteristics may be obtained by tempering under press.									

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 150	≤ 150	200	-	170	-	10	8	70
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 25		200	-	170	-	10	8	70
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 50		200	-	170	-	10	8	70
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 27 — Alloy EN AW-6101A [Al MgSi(A)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardnes s Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 150	≤ 150	200	-	170	-	10	8	70
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardnes s Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 25		200	-	170	-	10	8	70
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardnes s Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 50		200	-	170	-	10	8	70
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 2827 — Alloy EN AW-6101B [Al MgSi(B)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardnes s</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.			
T6 <sup>c d</sup>	-	≤ 15	215	-	160	-	8	6	70
T7 <sup>c e</sup>	-	≤ 15	170	-	120	-	12	10	60
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardnes s</b> Typical value
			min.	max.	min.	max.			
T6 <sup>c d</sup>	≤ 15		215	-	160	-	8	6	70
T7 <sup>c e</sup>	≤ 15		170	-	120	-	12	10	60
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardnes s</b> Typical value
			min.	max.	min.	max.			
T6 <sup>c d</sup>	≤ 15		215	-	160	-	8	6	70
T7 <sup>c e</sup>	≤ 15		170	-	120	-	12	10	60
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> Electrical conductivity $\gamma \geq 30$ MS/m.									
<sup>e</sup> Electrical conductivity $\gamma \geq 32$ MS/m.									

**Table 29** — Alloy EN AW-6005 [Al SiMg] and Alloy EN AW-6005A [Al SiMg(A)]

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	mm		MPa		MPa		%	%	Typical value HBW
	$D^a$	$S^b$	min.	ma	min	ma	min	min.	
T6 <sup>c</sup>	$\leq 25$	$\leq 25$	270	-	225	-	10	8	90
	$25 < D \leq 50$	$25 < S \leq 50$	270	-	225	-	8	-	90
	$50 < D \leq 100$	$50 < S \leq 100$	260	-	215	-	8	-	85
Extruded tube									
Temper	$t$	Wall thickness	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
			MPa		MPa		%	%	Typical value HBW
		mm	min.	ma	min	ma	min	min.	
T6 <sup>c</sup>		$\leq 5$	270	-	225	-	8	6	90
		$5 < t \leq 10$	260	-	215	-	8	6	85
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
			MPa		MPa		%	%	Typical value HBW
		mm	min.	ma	min	ma	min	min.	
Open profile T4 <sup>c</sup>		$\leq 25$	180	-	90	-	15	13	50
Open profile T6 <sup>c</sup>		$\leq 5$	270	-	225	-	8	6	90
		$5 < t \leq 10$	260	-	215	-	8	6	85
		$10 < t \leq 25$	250	-	200	-	8	6	85
Hollow profile		$\leq 10$	180	-	90	-	15	13	50
Hollow profile		$\leq 5$	255	-	215	-	8	6	85
		$5 < t \leq 15$	250	-	200	-	8	6	85
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> If a profile cross section <del>is comprised of</del> comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									



**Table 3029 — Alloy EN AW-6106 [Al MgSiMn]**

Extruded rod/bar								
Not specified								
Extruded tube								
Not specified								
Extruded profile								
Temper	Wall thickness <i>t</i> mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value
		min.	max.	min.	max.			
T6 <sup>a</sup>	≤ 10	250	-	200	-	8	6	75

<sup>a</sup> Properties may be obtained by press quenching.

**Table 3130 — Alloy EN AW-6008 [Al SiMgV]**

Extruded rod/bar								
Not specified								
Extruded tube								
Temper	Wall thickness <i>t</i>	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
		min.	max.	min.	max.			
T4	≤ 10	180	-	90		15	13	50
T6 <sup>a</sup>	≤ 5	270	-	225	-	8	6	90
	5 < <i>t</i> ≤ 10	260	-	215	-	8	6	85
Extruded profile <sup>b</sup>								
Temper	Wall thickness <i>t</i>	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
		min.	max.	min.	max.			
<i>Open profile</i> T4 <sup>a</sup>	≤ 10	180	-	90	-	15	13	50
<i>Open profile</i> T6 <sup>a</sup>	≤ 5	270	-	225	-	8	6	90
	5 < <i>t</i> ≤ 10	260	-	215	-	8	6	85
<i>Hollow profile</i> T4 <sup>a</sup>	≤ 10	180	-	90	-	15	13	50
<i>Hollow profile</i> T6 <sup>a</sup>	≤ 5	255	-	215	-	8	6	85
	5 < <i>t</i> ≤ 10	250	-	200	-	8	6	85

<sup>a</sup> Properties may be obtained by press quenching.

<sup>b</sup> If a profile cross section ~~is comprised of~~ **comprises** different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.

**Table 3231— Alloy EN AW-6110A [Al Mg0,9Si0,9MnCu(A)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.			
T5 <sup>c</sup>	≤ 120	≤ 120	380	-	360	-	10	8	115
T6 <sup>c</sup>	≤ 120	≤ 150	410	-	380	-	10	8	120
Extruded tube									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value	
		min.	max.	min.	max.				
T4 <sup>c</sup>	≤ 25	320		220	-	16	14	85	
T6 <sup>c</sup>	≤ 25	380	-	360	-	10	8	120	
Extruded profile									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value	
		min.	max.	min.	max.				
T4 <sup>c</sup>	≤ 25	320		220	-	16	14	85	
T6 <sup>c</sup>	≤ 25	380	-	360	-	10	8	120	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 3332 — Alloy EN AW-6012 [Al MgSiPb]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness Typical value
	$D^a$	$S^b$	min.	max	min	max	% min.	% min.	
T6, T6510, T6511 <sup>c</sup>	$\leq 150$	$\leq 150$	310	-	260	-	8	6	105
	$150 < D \leq 200$	$150 < S \leq 200$	260	-	200	-	8	-	105
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness Typical value
			min.	max	min	max	% min.	% min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	105
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness Typical value
			min.	max	min	max	% min.	% min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	105
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 3433 — Alloy EN AW-6014 [Al Mg0,6SiV]**

Extruded rod/bar								
Not specified								
Extruded tube								
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
		min.	max.	min.	max.			
T4 <sup>a</sup>	≤ 10	140		70	-	15	13	55
T6 <sup>a</sup>	≤ 5	250	-	200	-	8	6	80
	5 < $t$ ≤ 10	225	-	180	-	8	6	80
Extruded profile <sup>b</sup>								
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
		min.	max.	min.	max.			
Open profile T4 <sup>a</sup>	≤ 10	140	-	70	-	15	13	55
Open profile T6 <sup>a</sup>	≤ 5	250	-	200	-	10	8	80
	5 < $t$ ≤ 10	225	-	180	-	8	6	80
Hollow profile	≤ 10	140	-	70	-	15	13	55
Hollow profile	≤ 5	250	-	200	-	8	6	80
	5 < $t$ ≤ 10	225	-	180	-	8	6	80
<sup>a</sup> Properties may be obtained by press quenching.								
<sup>b</sup> If a profile cross section <del>is comprised of</del> comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.								

**Table 3534 — Alloy EN AW-6018 [Al Mg1SiPbMn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.			
T6, T6510, T6511 <sup>c</sup>	$\leq 150$	$\leq 150$	310	-	260	-	8	6	-
	$150 < D \leq$	$150 < S \leq 200$	260	-	200	-	8	-	-
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min.	max.	min.	max.			
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	-
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min.	max.	min.	max.			
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	-
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 3635 — Alloy EN AW-6023 [Al Si1Sn1MgBi]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T6, T6510, T6511 <sup>c</sup>	$\leq 150$	$\leq 150$	320	-	270	-	10	8	-
Extruded tube									
Not specified									
Extruded profile									
Not specified									
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 36 — Alloy EN AW-6026 [Al MgSiBi]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50}$ mm	Hardness  HBW Typical Value
	mm		MPa		MPa		%	%	
	D <sup>a</sup>	S <sup>b</sup>	mi	ma	mi	ma	mi	min	
T6, T6510, T6511 <sup>c</sup>	≤ 140	≤ 140	37	-	30		8	6	95
	140 < D ≤ 200	140 < S ≤ 200	0	-	0	-	8	6	90
			34	-	25	-	8	6	90
			0		0				
Extruded tube									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50}$ mm	HBW Typical Value
	$t$		MPa		MPa		%	%	
	mm		min.	ma	min.	ma	mi	min	
T6, T6510,	≤ 30		340	-	260	-	8	6	90
Extruded Profile									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50}$ mm	HBW Typical Value
	$t$		MPa		MPa		%	%	
	mm		min.	ma	min.	ma	mi	min	
T6, T6510,	≤ 40		340	-	260	-	8	6	90
<sup>a</sup> D = Diameter for round bar.									
<sup>b</sup> S = Width across flats for square and hexagonal bar, thickness for rectangular bar..									
<sup>c</sup> Properties may be obtained by press quenching									

**Table 37 — Alloy EN AW-6351 [Al Si1Mg0,5Mn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
	$D^a$	$S^b$	min	max	min	max	min.	min.	
O, H111	$\leq 200$	$\leq 200$	-	160	-	110	14	12	35
T4 <sup>c</sup>	$\leq 200$	$\leq 200$	205	-	110	-	14	12	67
T6 <sup>c</sup>	$\leq 20$	$\leq 20$	295	-	250	-	8	6	95
	$20 < D \leq 75$	$20 < S \leq 75$	300	-	255	-	8	-	95
	$75 < D \leq 150$	$75 < S \leq 150$	310	-	260	-	8	-	95
	$150 < D \leq 200$	$150 < S \leq 200$	280	-	240	-	6	-	95
	$200 < D \leq 250$	$200 < S \leq 250$	270	-	200	-	6	-	95
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min	max	min	max	min.	min.	
O, H111		$\leq 25$	-	160	-	110	14	12	35
T4 <sup>c</sup>		$\leq 25$	205	-	110	-	14	12	67
T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	300	-	255	-	10	8	95
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min	max	min	max	min.	min.	
O, H111		all	-	160	-	110	14	12	35
T4 <sup>c</sup>		$\leq 25$	205	-	110	-	14	12	67
Open profile T5		$\leq 5$	270	-	230	-	8	6	90
Open profile T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	300	-	255	-	10	8	95
Hollow profile		$\leq 5$	270	-	230	-	8	6	90
Hollow profile		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	300	-	255	-	10	8	95
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> If a profile cross section <del>is comprised of</del> <b>comprises</b> different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

Table 38 — Alloy EN AW-60606056 [Al MgSiSi1MgCuMn]

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T4 <sup>c</sup>	≤ 150	≤ 150	120	-	60	-	16	14	50
T5	≤ 150	≤ 150	160	-	120	-	8	6	60
T6 <sup>c</sup>	≤ 150	≤ 150	190	-	150	-	8	6	70
T64 <sup>c d</sup>	≤ 50	≤ 50	180	-	120	-	12	10	60
T66 <sup>c</sup>	≤ 150	≤ 150	215	-	160	-	8	6	75
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value HBW
			min.	max.	min.	max.			
T4 <sup>c</sup>	≤ 15		120	-	60	-	16	14	50
T5	≤ 15		160	-	120	-	8	6	60
T6 <sup>c</sup>	≤ 15		190	-	150	-	8	6	70
T64 <sup>c d</sup>	≤ 15		180	-	120	-	12	10	60
T66 <sup>c</sup>	≤ 15		215	-	160	-	8	6	75
Extruded profile <sup>e</sup>									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value HBW
			min.	max.	min.	max.			
T4 <sup>c</sup>	≤ 25		120	-	60	-	16	14	50
T5	≤ 5		160	-	120	-	8	6	60
	5 < $t$ ≤ 25		140	-	100	-	8	6	60
T6 <sup>c</sup>	≤ 3		190	-	150	-	8	6	70
	3 < $t$ ≤ 25		170	-	140	-	8	6	70
T64 <sup>c d</sup>	≤ 15		180	-	120	-	12	10	60
T66 <sup>c</sup>	≤ 3		215	-	160	-	8	6	75
	3 < $t$ ≤ 25		195	-	150	-	8	6	75
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> Bending quality.									
<sup>e</sup> If a profile cross section is comprised of different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									



Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T4, T451, T4511 <sup>c</sup>	≤ 80	≤ 80	350	-	245	-	15	14	95
T6, T651, T6511 <sup>c</sup>	≤ 80	≤ 80	380	-	360	-	10	8	115
T78, T7851,	≤ 80	≤ 80	360	-	335	-	10	8	105
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
T4, T4510,	≤ 10		350	-	245	-	15	14	95
T6, T6510,	≤ 10		380	-	360	-	10	8	115
T78, T78510, T78511 <sup>c</sup>	≤ 10		360	-	335	-	10	8	105
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 39 — Alloy EN AW-6060 [Al MgSi]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	mm		MPa		MPa		%	%	Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>	≤ 150	≤ 150	120	-	60	-	16	14	50
T5	≤ 150	≤ 150	160	-	120	-	8	6	60
T6 <sup>c</sup>	≤ 150	≤ 150	190	-	150	-	8	6	70
T64 <sup>c d</sup>	≤ 50	≤ 50	180	-	120	-	12	10	60
T66 <sup>c</sup>	≤ 150	≤ 150	215	-	160	-	8	6	75
Extruded tube									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	min.	max.	min.	max.	%	%	Typical value HBW
							min.	min.	
T4 <sup>c</sup>		≤ 15	120	-	60	-	16	14	50
T5		≤ 15	160	-	120	-	8	6	60
T6 <sup>c</sup>		≤ 15	190	-	150	-	8	6	70
T64 <sup>c d</sup>		≤ 15	180	-	120	-	12	10	60
T66 <sup>c</sup>		≤ 15	215	-	160	-	8	6	75
Extruded profile <sup>e</sup>									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	min.	max.	min.	max.	%	%	Typical value HBW
							min.	min.	
T4 <sup>c</sup>		≤ 25	120	-	60	-	16	14	50
T5		≤ 5	160	-	120	-	8	6	60
		5 < $t$ ≤ 25	140	-	100	-	8	6	60
T6 <sup>c</sup>		≤ 5	190	-	150	-	8	6	70
		5 < $t$ ≤ 25	170	-	140	-	8	6	70
T64 <sup>c d</sup>		≤ 15	180	-	120	-	12	10	60
T66 <sup>c</sup>		≤ 5	215	-	160	-	8	6	75
		5 < $t$ ≤ 25	195	-	150	-	8	6	75

<sup>a</sup>  $D$  = Diameter for round bar.<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.<sup>c</sup> Properties may be obtained by press quenching.<sup>d</sup> Bending quality.<sup>e</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.

**Table 3940 — Alloy EN AW-6360 [Al SiMgMn]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$ % min.	$A_{50}$ mm %	Hardnes s Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T4 <sup>c</sup>	≤ 150	≤ 150	110	-	50	-	16	14	40
T5	≤ 150	≤ 150	150	-	110	-	8	6	50
T6 <sup>c</sup>	≤ 150	≤ 150	185	-	140	-	8	6	60
T66 <sup>c</sup>	≤ 150	≤ 150	195	-	150	-	8	6	65
Extruded tube									
Temper	$t$	Wall thickness	$R_m$		$R_{p0,2}$		$A$ % min.	$A_{50}$ mm %	Hardnes s Typical value HBW
		mm	min.	max.	min.	max.			
T4 <sup>c</sup>		≤ 15	110	-	50	-	16	14	40
T5		≤ 15	150	-	120	-	8	6	50
T6 <sup>c</sup>		≤ 15	185	-	140	-	8	6	60
T66 <sup>c</sup>		≤ 15	195	-	150	-	8	6	65
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness	$R_m$		$R_{p0,2}$		$A$ % min.	$A_{50}$ mm %	Hardnes s Typical value HBW
		mm	min.	max.	min.	max.			
T4 <sup>c</sup>		≤ 25	110	-	50	-	16	14	40
T5		≤ 25	150	-	110	-	8	6	50
T6 <sup>c</sup>		≤ 25	185	-	140	-	8	6	60
T66 <sup>c</sup>		≤ 25	195	-	150	-	8	6	65
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> If a profile cross section <del>is comprised of</del> <b>comprises</b> different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross									

**Table 4041 — Alloy EN AW-6061 [Al Mg1SiCu]**

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.	
O, H111	≤ 200	≤ 200	-	150	-	110	16	14	30
T4 <sup>c</sup>	≤ 200	≤ 200	180	-	110	-	15	13	65
T6 <sup>c</sup>	≤ 200	≤ 200	260	-	240	-	8	6	95
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.	min.		
O, H111	≤ 25	-	150	-	110	16	14	30	
T4 <sup>c</sup>	≤ 25	180	-	110	-	15	13	65	
T6 <sup>c</sup>	≤ 5	260	-	240	-	8	6	95	
	$5 < t \leq 25$	260	-	240	-	10	8	95	
Extruded profile <sup>d</sup>									
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.	min.		
T4 <sup>c</sup>	≤ 25	180	-	110	-	15	13	65	
T6 <sup>c</sup>	≤ 5	260	-	240	-	9	7	95	
	$5 < t \leq 25$	260	-	240	-	10	8	95	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> If a profile cross section <del>is comprised of</del> <b>comprises</b> different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 4142 — Alloy EN AW-6261 [Al Mg1SiCuMn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	<b>Hardness</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	
O, H111	$\leq 100$	$\leq 100$	-	170	-	120	14	12	-
T4 <sup>c</sup>	$\leq 100$	$\leq 100$	180	-	100	-	14	12	-
T6 <sup>c</sup>	$\leq 20$	$\leq 20$	290	-	245	-	8	7	100
	$20 < D \leq 100$	$20 < S \leq 100$	290	-	245	-	8	-	100
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	<b>Hardness</b> Typical value
			min.	max.	min.	max.	% min.	% min.	
O, H111		$\leq 10$	-	170	-	120	14	12	-
T4 <sup>c</sup>		$\leq 10$	180	-	100	-	14	12	-
T5		$\leq 5$	270	-	230	-	8	7	-
		$5 < t \leq 10$	260	-	220	-	9	8	-
T6 <sup>c</sup>		$\leq 5$	290	-	245	-	8	7	100
		$5 < t \leq 10$	290	-	245	-	9	8	100
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	<b>Hardness</b> Typical value
			min.	max.	min.	max.	% min.	% min.	
O, H111		all	-	170	-	120	14	12	-
T4 <sup>c</sup>		$\leq 25$	180	-	100	-	14	12	-
Open profile T5		$\leq 5$	270	-	230	-	8	7	-
		$5 < t \leq 25$	260	-	220	-	9	8	-
		$> 25$	250	-	210	-	9	-	-
Open profile T6 <sup>c</sup>		$\leq 5$	290	-	245	-	8	7	100
		$5 < t \leq 25$	280	-	235	-	8	7	100
Hollow profile		$\leq 5$	270	-	230	-	8	7	-
		$5 < t \leq 10$	260	-	220	-	9	8	
Hollow profile		$\leq 5$	290	-	245	-	8	7	100
		$5 < t \leq 10$	270	-	230	-	9	8	100

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> Properties may be obtained by press quenching.

<sup>d</sup> If a profile cross section is comprised of comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.

**Table 4243 — Alloy EN AW-6262 [Al Mg1SiPb]**

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.	
T6 <sup>c</sup>	≤ 200	≤ 200	260	-	240	-	10	8	75
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.	min.	
T6 <sup>c</sup>	≤ 25		260	-	240	-	10	8	75
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.	min.	
T6 <sup>c</sup>	≤ 25		260	-	240	-	10	8	75
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
	$D^a$	$S^b$	min.	max.	min.	max.			
T6 <sup>c</sup>	≤ 200	≤ 200	260	-	240	-	10	8	75
Extruded tube									
Temper	$t$ mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.			
T6 <sup>c</sup>		≤ 25	260	-	240	-	10	8	75
Extruded profile									
Temper	$t$ mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.			
T6 <sup>c</sup>		≤ 25	260	-	240	-	10	8	75
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

Table 43 — Alloy EN AW-6262A [Al Mg1SiSn]

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	<b>Hardnes s</b> Typical value
	mm		MPa		MPa				
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	
T6 <sup>c</sup>	≤ 220	≤ 155	260	-	240	-	10	8	-
Extruded tube									
Not specified									
Extruded profile									
Temper	Wall thickness $t$	mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	<b>Hardnes s</b> Typical value
			min.	max.	min.	max.			
T6 <sup>c</sup>	≤ 25		260	-	240	-	10	8	-
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 4445 — Alloy EN AW-6063 [Al Mg0,7Si]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
O, H111	$\leq 200$	$\leq 200$	-	130	-	-	18	16	25
T4 <sup>c</sup>	$\leq 150$	$\leq 150$	130	-	65	-	14	12	50
	$150 < D \leq$	$150 < S \leq 200$	120	-	65	-	12	-	50
T5	$\leq 200$	$\leq 200$	175	-	130	-	8	6	65
T6 <sup>c</sup>	$\leq 150$	$\leq 150$	215	-	170	-	10	8	75
	$150 < D \leq$	$150 < S \leq 200$	195	-	160	-	10	-	75
T66 <sup>c</sup>	$\leq 200$	$\leq 200$	245	-	200	-	10	8	80
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
O, H111		$\leq 25$	-	130	-	-	18	16	25
T4 <sup>c</sup>		$\leq 10$	130	-	65	-	14	12	50
		$10 < t \leq 25$	120	-	65	-	12	10	50
T5		$\leq 25$	175	-	130	-	8	6	65
T6 <sup>c</sup>		$\leq 25$	215	-	170	-	10	8	75
T66 <sup>c</sup>		$\leq 25$	245	-	200	-	10	8	80
Extruded profile <sup>e</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
T4 <sup>c</sup>		$\leq 25$	130	-	65	-	14	12	50
T5		$\leq 310$	175	-	130	-	8	6	65
		$310 < t \leq 25$	160	-	110	-	7	5	65
T6 <sup>c</sup>		$\leq 10$	215	-	170	-	8	6	75
		$10 < t \leq 25$	195	-	160	-	8	6	75
T64 <sup>c,d</sup>		$\leq 15$	180	-	120	-	12	10	65
T66 <sup>c</sup>		$\leq 10$	245	-	200	-	8	6	80
		$10 < t \leq 25$	225	-	180	-	8	6	80
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> Bending quality. <sup>e</sup> If a profile cross section <del>is comprised of</del> <b>comprises</b> different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									



**Table 4546 — Alloy EN AW-6063A [Al Mg0,7Si(A)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
O, H111	$\leq 200$	$\leq 200$	-	150	-	-	16	14	28
T4 <sup>c</sup>	$\leq 150$	$\leq 150$	150	-	90	-	12	10	50
	$150 < D \leq$	$150 < S \leq 200$	140	-	90	-	10	-	50
T5	$\leq 200$	$\leq 200$	200	-	160	-	7	5	75
T6 <sup>c</sup>	$\leq 150$	$\leq 150$	230	-	190	-	7	5	80
	$150 < D \leq 200$	$150 < S \leq 200$	220	-	160	-	7	-	80
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 25$	-	150	-	-	16	14	28
T4 <sup>c</sup>		$\leq 10$	150	-	90	-	12	10	50
		$10 < t \leq 25$	140	-	90	-	10	8	50
T5		$\leq 25$	200	-	160	-	7	5	75
T6 <sup>c</sup>		$\leq 25$	230	-	190	-	7	5	80
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>		$\leq 25$	150	-	90	-	12	10	50
T5		$\leq 10$	200	-	160	-	7	5	75
		$10 < t \leq 25$	190	-	150	-	6	4	75
T6 <sup>c</sup>		$\leq 10$	230	-	190	-	7	5	80
		$10 < t \leq 25$	220	-	180	-	5	4	80
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> If a profile cross section <del>is comprised of</del> comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 4647 — Alloy EN AW-6463 [Al Mg0,7Si(B)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>	≤ 150	≤ 150	125	-	75	-	14	12	46
T5	≤ 150	≤ 150	150	-	110	-	8	6	60
T6 <sup>c</sup>	≤ 150	≤ 150	195	-	160	-	10	8	74
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 25	195	-	160	-	10	8	74
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardnes s</b> Typical value
			min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>		≤ 50	125	-	75	-	14	12	46
T5		≤ 50	150	-	110	-	8	6	60
T6 <sup>c</sup>		≤ 50	195	-	160	-	10	8	74
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> If a profile cross section <del>is comprised of</del> <b>comprises</b> different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 48 — Alloy EN AW-6064A [Al Mg1SiBi]**

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.	
T6, T6510, T6511 <sup>c</sup>	$\leq 140$	$\leq 140$	310	-	260	-	8	6	95
	$140 < D \leq$	$140 < S \leq 250$	260	-	240	-	8	6	90
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	90
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 40$	310	-	260	-	8	6	90
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Characteristics may be obtained by tempering under press.									

**Table 49 — Alloy EN AW-6065 [Al Mg1Bi1Si]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	$\leq 220$	$\leq 155$	260	-	240	-	10	8	-
Extruded tube									
Not specified									
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		$\leq 25$	260	-	240	-	10	8	-
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 4850 — Alloy EN AW-6081 [Al Si0,9MgMn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 250	≤ 250	275	-	240	-	8	6	95
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 25		275	-	240	-	8	6	95
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
<i>Open profile</i> T6 <sup>c</sup>	≤ 25		275	-	240	-	8	6	95
<i>Hollow profile</i>	≤ 15		275	-	240	-	8	6	95
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 4951 — Alloy EN AW-6082 [Al Si1MgMn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
O, H111	$\leq 200$	$\leq 200$	-	160	-	110	14	12	35
T4 <sup>c</sup>	$\leq 200$	$\leq 200$	205	-	110	-	14	12	70
T6 <sup>c</sup>	$\leq 20$	$\leq 20$	295	-	250	-	8	6	95
	$20 < D \leq 150$	$20 < S \leq 150$	310	-	260	-	8	-	95
	$150 < D \leq 200$	$150 < S \leq 200$	280	-	240	-	6	-	95
	$200 < D \leq 250$	$200 < S \leq 250$	270	-	200	-	6	-	95
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 25$	-	160	-	110	14	12	35
T4 <sup>c</sup>		$\leq 25$	205	-	110	-	14	12	70
T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	310	-	260	-	10	8	95
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		all	-	160	-	110	14	12	35
T4 <sup>c</sup>		$\leq 25$	205	-	110	-	14	12	70
Open profile		$\leq 5$	270	-	230	-	8	6	90
Open profile		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	310	-	260	-	10	8	95
Hollow profile T5		$\leq 5$	270	-	230	-	8	6	90
Hollow profile T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 15$	310	-	260	-	10	8	95

<sup>a</sup>  $D$  = Diameter for round bar.<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.<sup>c</sup> Properties may be obtained by press quenching.<sup>d</sup> If a profile cross section ~~is comprised of~~ **comprises** different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.

**Table 5052 — Alloy EN AW-6182 [Al Si1MgZr]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	
T4 <sup>c</sup>	$\leq 220$	$\leq 155$	205	-	110	-	12	10	-
T6 <sup>c, d</sup>	$9 < D \leq 100$	$9 < S \leq 100$	360	-	330	-	9	7	-
	$100 < D \leq 150$	$100 < S \leq 150$	330	-	300	-	8	6	-
	$150 < D \leq 220$	$150 < S \leq 220$	280	-	240	-	6	4	-
Extruded tube Not specified									
Extruded profile Not specified									
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> Properties obtained by the user, however, may be lower than those listed if the material has been formed or otherwise cold or hot worked, particularly in the annealed temper, prior to normal solution heat treatment.									

**Table 5153 — Alloy EN AW-7003 [Al Zn6Mg0,8Zr]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	
T5	all	all	310	-	260	-	10	8	-
T6 <sup>c</sup>	$\leq 50$	$\leq 50$	350	-	290	-	10	8	110
	$50 < D \leq 150$	$50 < S \leq 150$	340	-	280	-	10	8	110
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	Hardness Typical value HBW
			min.	max.	min.	max.	% min.	% min.	
T5		all	310	-	260	-	10	8	-
T6 <sup>c</sup>		$\leq 10$	350	-	290	-	10	8	110
		$10 < t \leq 25$	340	-	280	-	10	8	110
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	Hardness Typical value HBW
			min.	max.	min.	max.	% min.	% min.	
T5		all	310	-	260	-	10	8	-
T6 <sup>c</sup>		$\leq 10$	350	-	290	-	10	8	110
		$10 < t \leq 25$	340	-	280	-	10	8	110
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> If a profile cross section is comprised of comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 5254 — Alloy EN AW-7005 [Al Zn4,5Mg1,5Mn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 50	≤ 50	350	-	290	-	10	8	110
	50 < $D$ ≤ 200	50 < $S$ ≤ 200	340	-	270	-	10	-	110
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 15	350	-	290	-	10	8	110
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 40	350	-	290	-	10	8	110
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 5355 — Alloy EN AW-7108 [Al Zn5Mg1Zr]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 100	≤ 100	310	-	260		10	8	90
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 20	310	-	260	-	10	8	90
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 30	310	-	260	-	10	8	90
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 5456 — Alloy EN AW-7108A [Al Zn5Mg1Zr(A)]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	<b>Hardness</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	
T6 <sup>c</sup>	≤ 200	≤ 200	310	-	260		12	10	90
T66 <sup>c</sup>	≤ 50	≤ 50	350	-	290	-	10	8	105
	50 < $D$ ≤ 200	50 < $S$ ≤ 200	340	-	275	-	10	-	105
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	<b>Hardness</b> Typical value
			min.	max.	min	max.	% min.	% min.	
T6 <sup>c</sup>		≤ 20	310	-	260	-	12	10	90
T66 <sup>c</sup>		≤ 20	350	-	290	-	10	8	105
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	<b>Hardness</b> Typical value
			min.	max.	min	max.	% min.	% min.	
T6 <sup>c</sup>		≤ 40	310	-	260	-	12	10	90
T66 <sup>c</sup>		≤ 40	350	-	290	-	10	8	105
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									



**Table 5557 — Alloy EN AW-7020 [Al Zn4,5Mg1]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$		$R_{p0,2}$		$A$ %	$A_{50\text{ mm}}$ %	Hardnes s Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	$\leq 50$	$\leq 50$	350	-	290	-	10	8	110
	$50 < D \leq 200$	$50 < S \leq 200$	340	-	275	-	10	-	110
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$ %	$A_{50\text{ mm}}$ %	Hardnes s Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		$\leq 15$	350	-	290	-	10	8	110
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$ %	$A_{50\text{ mm}}$ %	Hardnes s Typical value
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		$\leq 40$	350	-	290	-	10	8	110
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 5658 — Alloy EN AW-7021 [Al Zn5,5Mg1,5]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardnes s</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.			
T6 <sup>c</sup>	≤ 40	≤ 40	410	-	350	-	10	8	120
Extruded tube									
Temper	$t$ mm	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardnes s</b> Typical value
			min.	max.	min	max.			
T6 <sup>c</sup>		≤ 10	410	-	350	-	10	8	120
Extruded profile									
Temper	$t$ mm	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardnes s</b> Typical value
			min.	max.	min	max.			
T6 <sup>c</sup>		≤ 20	410	-	350	-	10	8	120
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 5759 — Alloy EN AW-7022 [Al Zn5Mg3Cu]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$  %	$A_{50\text{ mm}}$  %	<b>Hardne ss</b>  Typical value HBW
	mm		MPa		MPa				
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>	$\leq 80$	$\leq 80$	490	-	420	-	7	5	133
	$80 < D \leq 200$	$80 < S \leq 200$	470	-	400	-	7	-	
Extruded tube									
Temper	$t$	Wall thickness	$R_m$		$R_{p0,2}$		$A$  %	$A_{50\text{ mm}}$  %	<b>Hardne ss</b>  Typical value HBW
			MPa		MPa				
		mm	min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	490	-	420	-	7	5	133
Extruded profile									
Temper	$t$	Wall thickness	$R_m$		$R_{p0,2}$		$A$  %	$A_{50\text{ mm}}$  %	<b>Hardne ss</b>  Typical value HBW
			MPa		MPa				
		mm	min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	490	-	420	-	7	5	133
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 5860 — Alloy EN AW-7049A [Al Zn8MgCu]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6, T6510, T6511	$\leq 100$	$\leq 100$	610	-	530	-	5	4	170
	$100 < D \leq 125$	$100 < S \leq 125$	560	-	500	-	5	-	170
	$125 < D \leq 150$	$125 < S \leq 150$	520	-	430	-	5	-	170
	$150 < D \leq 180$	$150 < S \leq 180$	450	-	400	-	3	-	170
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511		$\leq 30$	610	-	530	-	5	4	170
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511		$\leq 30$	610	-	530	-	5	4	170
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									

**Table 5961 — EN AW-7075 [Al Zn5,5MgCu]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	Hardness Typical value
	$D^a$	$S^b$	min.	max.	min.	max.	% min.	% min.	
O, H111	$\leq 200$	$\leq 200$	-	275	-	16	10	8	60
T6, T6510, T6511	$\leq 25$	$\leq 25$	540	-	480	-	7	5	150
	$25 < D \leq 100$	$25 < S \leq 100$	560	-	500	-	7	-	150
	$100 < D \leq 150$	$100 < S \leq 150$	550	-	440	-	5	-	150
	$150 < D \leq 200$	$150 < S \leq 200$	440	-	400	-	5	-	150
T73, T73510, T73511 <sup>c</sup>	$\leq 25$	$\leq 25$	485	-	420	-	7	5	135
	$25 < D \leq 75$	$25 < S \leq 75$	475	-	405	-	7	-	135
	$75 < D \leq 100$	$75 < S \leq 100$	470	-	390	-	6	-	135
	$100 < D \leq 150$	$100 < S \leq 150$	440	-	360	-	6	-	135
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	Hardness Typical value HBW
			min.	max.	min.	max.	% min.	% min.	
O, H111		$\leq 10$	-	275	-	165	10	-	60
T6, T6510, T6511		$\leq 5$	540	-	485	-	8	6	150
		$5 < t \leq 10$	560	-	505	-	7	5	150
		$10 < t \leq 50$	560	-	495	-	6	4	150
T73, T73510, T73511 <sup>c</sup>		$\leq 5$	470	-	400	-	7	5	135
		$5 < t \leq 25$	485	-	420	-	8	6	135
		$25 < t \leq 50$	475	-	405	-	8	-	135
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$		$R_{p0,2}$		$A$	$A_{50 \text{ mm}}$	Hardness Typical value
			min.	max.	min.	max.	% min.	% min.	
T6, T6510, T6511		$\leq 25$	530	-	460	-	6	4	150
		$25 < t \leq 60$	540	-	470	-	6	-	150
T73, T73510, T73511 <sup>c</sup>		$\leq 25$	485	-	420	-	7	5	135

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> For materials of thickness 20 mm or above, see EN 755-1, with respect to stress corrosion cracking resistance.

<sup>d</sup> If a profile cross section is comprised of different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.

## Annex A (informative)

### List of tempers used in Tables 1 to 5961 (extract of EN 515)

Temper	
Symbol	Definition
F	as fabricated (no mechanical property limits specified)
O	annealed - products achieving the required annealed properties after hot forming processes may be designated as O temper
H111	annealed and slightly strain-hardened (less than H11) during subsequent operations such as stretching or straightening
H112	slightly strain-hardened from working at an elevated temperature or from a limited amount of cold work (mechanical property limits specified), such as stretching or straightening
T3	solution heat-treated, cold worked and naturally aged
T3510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %) and naturally aged The products receive no further straightening after stretching.
T3511	same as T3510 except that minor straightening is allowed after stretching to comply with standard tolerances
T4	solution heat-treated and naturally aged
T4510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %) and naturally aged The products receive no further straightening after stretching.
T4511	same as T4510 except that minor straightening is allowed after stretching to comply with standard tolerances
T5	cooled from an elevated temperature shaping process and then artificially aged
T6	solution heat-treated and then artificially aged
T64	solution heat-treated and then artificially aged in underageing conditions (between T6 and T61) to improve formability
T6510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %) and then artificially aged The products receive no further straightening after stretching.
T6511	same as T6510 except that minor straightening is allowed after stretching to comply with standard tolerances
T66	solution heat-treated and then artificially aged - mechanical property level higher than T6 achieved through special control of the process (6000 series alloys)
T7	solution heat-treated and then artificially overaged
T73	solution heat-treated and then artificially overaged in order to achieve the best stress corrosion resistance
T73510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %)

<b>Temper</b>	
<b>Symbol</b>	<b>Definition</b>
	and then artificially overaged in order to achieve the best stress corrosion resistance The products receive no further straightening after stretching.
T73511	same as T73510 except that minor straightening is allowed after stretching to comply with standard tolerances
T8	solution heat-treated, cold worked and then artificially aged
T8510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %) and then artificially aged The products receive no further straightening after stretching.
T8511	same as T8510 except that minor straightening is allowed after stretching to comply with standard tolerances

## Bibliography

- [1] EN 515, *Aluminium and aluminium alloys - Wrought products - Temper designations*
- [2] EN 573-3, *Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition and form of products*





BSI Standards Publication

# Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles

Part 2: Mechanical properties

**National foreword**

This British Standard is the UK implementation of EN 755-2:2016. It supersedes BS EN 755-2:2013 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee NFE/35, Light metals and their alloys.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

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

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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.

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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*

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 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		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> 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		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min	
F c, H112	all		60		20	-	25	23	20
O, H111	all		60	95	20	-	25	23	20
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min	
F c, H112	all		60		20	-	25	23	20
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar									
<sup>c</sup> 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		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all	all	60	-	23		25	23	18
Extruded tube									
Not specified									
Extruded profile									
Not specified									
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 3 — Aluminium EN AW-1200 [Al 99,0]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all	all	75	-	25	-	20	18	23
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all	all	75	-	25		20	18	23
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all		75	-	25		20	18	23
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 4 — Aluminium EN AW-1350 [Al 99,5]**

Extruded rod/bar <sup>d</sup>									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all	all	60	-	-	-	25	23	20
Extruded tube <sup>d</sup>									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all		60	-	-	-	25	23	20
Extruded profile <sup>d</sup>									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup> , H112	all		60	-	-	-	25	23	20
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									
<sup>d</sup> Electrical conductivity $\gamma \geq 35,4 \text{ MS/m}$ .									

**Table 5 — Alloy EN AW-2007 [Al Cu4PbMgMn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T4, T4510, T4511 <sup>c</sup>	$\leq 80$	$\leq 80$	370	-	250	-	8	6	95
	$80 < D \leq 200$	$80 < S \leq 200$	340	-	220	-	8	-	
	$200 < D \leq 250$	$200 < S \leq 250$	330	-	210	-	7	-	
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T4, T4510, T4511 <sup>c</sup>	$\leq 25$		370	-	250	-	8	6	95
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T4, T4510, T4511 <sup>c</sup>	$\leq 30$		370	-	250	-	8	6	95
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 6 — Alloy EN AW-2011 [Al Cu6BiPb] and Alloy EN AW-2011A [Al Cu6BiPb(A)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>	≤ 200	≤ 60	275	-	125	-	14	12	95
T6 <sup>c</sup>	≤ 75	≤ 60	310	-	230	-	8	6	110
	75 < $D$ ≤ 200	-	295	-	195	-	6	-	110
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 25		310	-	230	-	6	4	110
Extruded profile									
Not specified									
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 7 — Alloy EN AW-2014 [Al Cu4SiMg] and Alloy EN AW-2014A [Al Cu4SiMg(A)]**

Drawn 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.	
O, H111	$\leq 200$	$\leq 200$	-	250	-	135	12	10	45
T4, T4510, T4511	$\leq 25$	$\leq 25$	370	-	230	-	13	11	110
	$25 < D \leq 75$	$25 < S \leq 75$	410	-	270	-	12	-	110
	$75 < D \leq 150$	$75 < S \leq 150$	390	-	250	-	10	-	110
	$150 < D \leq 200$	$150 < S \leq 200$	350	-	230	-	8	-	110
T6, T6510, T6511	$\leq 25$	$\leq 25$	415	-	370	-	6	5	140
	$25 < D \leq 75$	$25 < S \leq 75$	460	-	415	-	7	-	140
	$75 < D \leq 150$	$75 < S \leq 150$	465	-	420	-	7	-	140
	$150 < D \leq 200$	$150 < S \leq 200$	430	-	350	-	6	-	140
	$200 < D \leq 250$	$200 < S \leq 250$	420	-	320	-	5	-	140
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 20$	-	250	-	135	12	10	45
T4, T4510, T4511		$\leq 20$	370	-	230	-	11	10	110
T6, T6510, T6511		$\leq 10$	415	-	370	-	7	5	140
		$10 < t \leq 40$	450	-	400	-	6	4	140
Extruded profile <sup>c</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		all	-	250	-	135	12	10	45
T4, T4510, T4511		$\leq 25$	370	-	230	-	11	10	110
		$25 < t \leq 75$	410	-	270	-	10	-	110
T6, T6510, T6511		$\leq 25$	415	-	370	-	7	5	140
		$25 < t \leq 75$	460	-	415	-	7	-	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> If a profile cross section comprises different thicknesses which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

Table 8 — Alloy EN AW-2017A [Al Cu4MgSi(A)]

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.	
O, H111	$\leq 200$	$\leq 200$	-	250	-	135	12	10	45
T4, T4510, T4511 <sup>c</sup>	$\leq 25$	$\leq 25$	380	-	260	-	12	10	105
	$25 < D \leq 75$	$25 < S \leq 75$	400	-	270	-	10	-	105
	$75 < D \leq 150$	$75 < S \leq 150$	390	-	260	-	9	-	105
	$150 < D \leq 200$	$150 < S \leq 200$	370	-	240	-	8	-	105
	$200 < D \leq 250$	$200 < S \leq 250$	360	-	220	-	7	-	105
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0.2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 20$	-	250	-	135	12	10	45
T4, T4510, T4511 <sup>c</sup>		$\leq 10$	380	-	260	-	12	10	105
		$10 < t \leq 75$	400	-	270	-	10	8	105
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0.2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T4, T4510, T4511 <sup>c</sup>		$\leq 30$	380	-	260	-	10	8	105
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 9 — Alloy EN AW-2618A [Al Cu2Mg1.5Ni]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T6, T6511	$D \leq 10$	$S \leq 10$	410	-	330	-	6	4	140
T6, T6511	$10 < D \leq 100$	$10 < S \leq 100$	420	-	360	-	7	5	145
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.			
T6, T6511		$\leq 10$	410	-	330	-	6	4	140
T6, T6511		$10 < t \leq 100$	420	-	360	-	7	5	145
Extruded profile <sup>c</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.			
T6, T6511		$\leq 10$	410	-	330	-	6	4	140
T6, T6511		$10 < t \leq 100$	420	-	360	-	7	5	145
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

Table 10 — Alloy EN AW-2024 [Al Cu4Mg1]

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.	
O, H111	$\leq 200$	$\leq 200$	-	250	-	150	12	10	47
T3, T3510, T3511	$\leq 50$	$\leq 50$	450	-	310	-	8	6	120
	$50 < D \leq 100$	$50 < S \leq 100$	440	-	300	-	8	-	120
	$100 < D \leq 200$	$100 < S \leq 200$	420	-	280	-	8	-	120
	$200 < D \leq 250$	$200 < S \leq 250$	400	-	270	-	8	-	120
T8, T8510, T8511	$\leq 150$	$\leq 150$	455	-	380	-	5	4	130
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 30$	-	250	-	150	12	10	47
T3, T3510, T3511		$\leq 30$	420	-	290	-	8	6	120
T8, T8510, T8511		$\leq 30$	455	-	380	-	5	4	130
Extruded profile <sup>c</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		all	-	250	-	150	12	10	47
T3, T3510, T3511		$\leq 15$	395	-	290	-	8	6	120
		$15 < t \leq 50$	420	-	290	-	8	-	120
T8, T8510, T8511		$\leq 50$	455	-	380	-	5	4	130
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 11 — Alloy EN AW-2030 [Al Cu4PbMg]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b>  Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T4, T4510, T4511 <sup>c</sup>	$\leq 80$	$\leq 80$	370	-	250	-	8	6	115
	$80 < D \leq 200$	$80 < S \leq 200$	340	-	220	-	8	-	115
	$200 < D \leq 250$	$200 < S \leq 250$	330	-	210	-	7	-	115
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b>  Typical value HBW
			min.	max.	min.	max.			
T4, T4510, T4511 <sup>c</sup>		$\leq 25$	370	-	250	-	8	6	115
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b>  Typical value HBW
			min.	max.	min.	max.			
T4, T4510, T4511 <sup>c</sup>		$\leq 30$	370	-	250	-	8	6	115
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									



**Table 12 — Alloy EN AW-3102 [Al Mn0,2]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness  Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F $\epsilon$ , H112	all	all	80	-	30	-	25	23	23
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness  Typical value HBW
			min.	max.	min.	max.			
F $\epsilon$ , H112		all	80	-	30	-	25	23	23
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness  Typical value HBW
			min.	max.	min.	max.			
F $\epsilon$ , H112		all	80	-	30	-	25	23	23
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

**Table 13 — Alloy EN AW-3003 [Al Mn1Cu]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	<b>Hardness</b>  Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	all	all	95	-	35	-	25	20	30
O, H111	all	all	95	135	35	-	25	20	30
Extruded tube									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.		<b>Hardness</b>  Typical value HBW
		min.	max.	min.	max.				
F <sup>c</sup> , H112	all	95	-	35	-	25	20		30
O, H111	all	95	135	35	-	25	20		30
Extruded profile									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.		<b>Hardness</b>  Typical value HBW
		min.	max.	min.	max.				
F <sup>c</sup> , H112	all	95	-	35	-	25	20		30
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

Table 14 — Alloy EN AW-3103 [Al Mn1]

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F $\epsilon$ , H112	all	all	95	-	35	-	25	20	28
O, H111	all	all	95	135	35	-	25	20	28
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F $\epsilon$ , H112	all		95	-	35	-	25	20	28
O, H111	all		95	135	35	-	25	20	28
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F $\epsilon$ , H112	all		95	-	35	-	25	20	28

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> F Temper: property values are for information only.

**Table 15 — Alloy EN AW-5005 [Al Mg1(B)] and Alloy EN AW-5005A [Al Mg1(C)]**

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 <sup>c</sup> , H112	all	100	100	-	40	-	18	16	30
O, H111	≤ 80	≤ 60	100	150	40	-	18	16	30
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.	min.		
F <sup>c</sup> , H112	all	100	-	40	-	18	16	30	
O, H111	≤ 20	100	150	40	-	20	18	30	
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.	min.		
F <sup>c</sup> , H112	all	100	-	40	-	18	16	30	
O, H111	≤ 20	100	150	40	-	20	18	30	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 16 — Alloy EN AW-5019 [Al Mg5]**

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 <sup>c</sup> , H112	≤ 200	≤ 200	250	-	110	-	14	12	65
O, H111	≤ 200	≤ 200	250	320	110	-	15	13	65
Extruded tube									
Temper	$t$ mm	Wall thickness mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	Hardness Typical value HBW
				min.	max.	min.	max.	min.	
F <sup>c</sup> , H112		≤ 30		250	-	110	-	14	65
O, H111		≤ 30		250	320	110	-	15	65
Extruded profile									
Temper	$t$ mm	Wall thickness mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	Hardness Typical value HBW
				min.	max.	min.	max.	min.	
F <sup>c</sup> , H112		≤ 30		250	-	110	-	14	65
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

**Table 17 — Alloy EN AW-5049 [Al Mg2Mn0,8]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	all	all	180	-	80	-	15	13	50
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112	all		180	-	80	-	15	13	50
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardnes s Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112	all		180	-	80	-	15	13	50
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 18 — Alloy EN AW-5051A [Al Mg2]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F <sup>c</sup> , H112	all	all	150	-	50	-	16	14	40
O, H111	all	all	150	200	50	-	18	16	40
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112	all		150	-	60	-	16	14	40
O, H111	all		150	200	60	-	18	16	40
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F <sup>c</sup> , H112	all		150	-	60	-	16	14	40

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> F Temper: property values are for information only.

**Table 19 — Alloy EN AW-5251 [Al Mg2Mn0,3]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	mm		MPa		MPa		%	%	Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F $^c$ , H112	all	all	160	-	60	-	16	14	45
O, H111	all	all	160	220	60	-	17	15	45
Extruded tube									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	MPa		MPa		%	%	Typical value HBW
			min.	max.	min.	max.	min.	min.	
F $^c$ , H112	all		160	-	60	-	16	14	45
O, H111	all		160	220	60	-	17	15	45
Extruded profile									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	MPa		MPa		%	%	Typical value HBW
			min.	max.	min.	max.	min.	min.	
F $^c$ , H112	all		160	-	60	-	16	14	45

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> F Temper: property values are for information only.

**Table 20 — Alloy EN AW-5052 [Al Mg2,5]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F <sub>c</sub> , H112	all	all	170	-	70	-	15	13	47
O, H111	all	all	170	230	70	-	17	15	45
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sub>c</sub> , H112	all		170	-	70	-	15	13	47
O, H111	all		170	230	70	-	17	15	45
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sub>c</sub> , H112	all		170	-	70	-	15	13	47
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									



**Table 21 — Alloy EN AW-5154A [Al Mg3,5(A)]**

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 <sup>c</sup> , H112	≤ 200	≤ 200	200	-	85	-	16	14	55
O, H111	≤ 200	≤ 200	200	275	85	-	18	16	55
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.	min.	
F <sup>c</sup> , H112	≤ 25		200	-	85	-	16	14	55
O, H111	≤ 25		200	275	85	-	18	16	55
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.	min.	
F <sup>c</sup> , H112	≤ 25		200	-	85	-	16	14	55
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 22 — Alloy EN AW-5454 [Al Mg3Mn]**

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 <sup>c</sup> , H112	≤ 200	≤ 200	200	-	85	-	16	14	60
O, H111	≤ 200	≤ 200	200	275	85	-	18	16	60
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.	min.	
F <sup>c</sup> , H112	≤ 25		200	-	85	-	16	14	60
O, H111	≤ 25		200	275	85	-	18	16	60
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.	min.	
F <sup>c</sup> , H112	≤ 25		200	-	85	-	16	14	60
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

Table 23 — Alloy EN AW-5754 [Al Mg3]

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F $^c$ , H112	$\leq 150$	$\leq 150$	180	-	80	-	14	12	47
	$150 < D \leq 250$	$150 < S \leq 250$	180	-	70	-	13	-	47
O, H111	$\leq 150$	$\leq 150$	180	250	80	-	17	15	45
Extruded tube									
Temper	$t$  mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F $^c$ , H112		$\leq 25$	180	-	80	-	14	12	47
O, H111		$\leq 25$	180	250	80	-	17	15	45
Extruded profile									
Temper	$t$  mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F $^c$ , H112		$\leq 25$	180	-	80	-	14	12	47
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 24 — Alloy EN AW-5083 [Al Mg4,5Mn0,7]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
F <sup>c</sup>	$\leq 200$	$\leq 200$	270	-	110	-	12	10	70
	$200 < D \leq 250$	$200 < S \leq 250$	260	-	100	-	12	-	70
O, H111	$\leq 200$	$\leq 200$	270	-	110	-	12	10	70
H112	$\leq 200$	$\leq 200$	270	-	125	-	12	10	70
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup>		all	270	-	110	-	12	10	70
O, H111		all	270	-	110	-	12	10	70
H112		all	270	-	125	-	12	10	70
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
F <sup>c</sup>		all	270	-	110	-	12	10	70
H112		all	270	-	125	-	12	10	70
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> F Temper: property values are for information only.									

**Table 25 — Alloy EN AW-5086 [Al Mg4]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
F $\epsilon$ , H112	≤ 250	≤ 250	240	-	95	-	12	10	65
O, H111	≤ 200	≤ 200	240	320	95	-	18	15	65
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F $\epsilon$ , H112	all		240	-	95	-	12	10	65
O, H111	all		240	320	95	-	18	15	65
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
F $\epsilon$ , H112	all		240	-	95	-	12	10	65
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> F Temper: property values are for information only.									

**Table 26 — Alloy EN AW-6101A [Al MgSi(A)]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 150	≤ 150	200	-	170	-	10	8	70
Extruded tube									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 25		200	-	170	-	10	8	70
Extruded profile									
Temper	Wall thickness $t$ mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 50		200	-	170	-	10	8	70
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 27 — Alloy EN AW-6101B [Al MgSi(B)]**

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.	
T6 <sup>c d</sup>	-	≤ 15	215	-	160	-	8	6	70
T7 <sup>c e</sup>	-	≤ 15	170	-	120	-	12	10	60
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.	min.	
T6 <sup>c d</sup>	≤ 15		215	-	160	-	8	6	70
T7 <sup>c e</sup>	≤ 15		170	-	120	-	12	10	60
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.	min.	
T6 <sup>c d</sup>	≤ 15		215	-	160	-	8	6	70
T7 <sup>c e</sup>	≤ 15		170	-	120	-	12	10	60
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> Electrical conductivity $\gamma \geq 30$ MS/m.									
<sup>e</sup> Electrical conductivity $\gamma \geq 32$ MS/m.									

**Table 28 — Alloy EN AW-6005 [Al SiMg] and Alloy EN AW-6005A [Al SiMg(A)]**

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.	
T6 <sup>c</sup>	$\leq 25$	$\leq 25$	270	-	225	-	10	8	90
	$25 < D \leq 50$	$25 < S \leq 50$	270	-	225	-	8	-	90
	$50 < D \leq 100$	$50 < S \leq 100$	260	-	215	-	8	-	85
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		$\leq 5$	270	-	225	-	8	6	90
		$5 < t \leq 10$	260	-	215	-	8	6	85
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
<i>Open profile</i> T4 <sup>c</sup>		$\leq 25$	180	-	90	-	15	13	50
<i>Open profile</i> T6 <sup>c</sup>		$\leq 5$	270	-	225	-	8	6	90
		$5 < t \leq 10$	260	-	215	-	8	6	85
		$10 < t \leq 25$	250	-	200	-	8	6	85
<i>Hollow profile</i> T4 <sup>c</sup>		$\leq 10$	180	-	90	-	15	13	50
<i>Hollow profile</i> T6 <sup>c</sup>		$\leq 5$	255	-	215	-	8	6	85
		$5 < t \leq 15$	250	-	200	-	8	6	85
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 29 — Alloy EN AW-6106 [Al MgSiMn]**

Extruded rod/bar								
Not specified								
Extruded tube								
Not specified								
Extruded profile								
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50 \text{ mm}}$ % min.	Hardness Typical value HBW
		min.	max.	min.	max.			
T6 <sup>a</sup>	≤ 10	250	-	200	-	8	6	75

<sup>a</sup> Properties may be obtained by press quenching.

**Table 30 — Alloy EN AW-6008 [Al SiMgV]**

Extruded rod/bar								
Not specified								
Extruded tube								
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50 \text{ mm}}$ % min.	Hardness Typical value HBW
		min.	max.	min.	max.			
T4	≤ 10	180	-	90	-	15	13	50
T6 <sup>a</sup>	≤ 5	270	-	225	-	8	6	90
	5 < $t$ ≤ 10	260	-	215	-	8	6	85
Extruded profile <sup>b</sup>								
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50 \text{ mm}}$ % min.	Hardness Typical value HBW
		min.	max.	min.	max.			
Open profile T4 <sup>a</sup>	≤ 10	180	-	90	-	15	13	50
Open profile T6 <sup>a</sup>	≤ 5	270	-	225	-	8	6	90
	5 < $t$ ≤ 10	260	-	215	-	8	6	85
Hollow profile T4 <sup>a</sup>	≤ 10	180	-	90	-	15	13	50
Hollow profile T6 <sup>a</sup>	≤ 5	255	-	215	-	8	6	85
	5 < $t$ ≤ 10	250	-	200	-	8	6	85

<sup>a</sup> Properties may be obtained by press quenching.

<sup>b</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.



**Table 31— Alloy EN AW-6110A [Al Mg0,9Si0,9MnCu(A)]**

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.	
T5 <sup>c</sup>	≤ 120	≤ 120	380	-	360	-	10	8	115
T6 <sup>c</sup>	≤ 120	≤ 150	410	-	380	-	10	8	120
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.	min.		
T4 <sup>c</sup>	≤ 25	320		220	-	16	14	85	
T6 <sup>c</sup>	≤ 25	380	-	360	-	10	8	120	
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.	min.		
T4 <sup>c</sup>	≤ 25	320		220	-	16	14	85	
T6 <sup>c</sup>	≤ 25	380	-	360	-	10	8	120	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 32 — Alloy EN AW-6012 [Al MgSiPb]**

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.	
T6, T6510, T6511 <sup>c</sup>	$\leq 150$	$\leq 150$	310	-	260	-	8	6	105
	$150 < D \leq 200$	$150 < S \leq 200$	260	-	200	-	8	-	105
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	105
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	105
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

Table 33 — Alloy EN AW-6014 [Al Mg0,6SiV]

Extruded rod/bar								
Not specified								
Extruded tube								
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness
		min.	max.	min.	max.	min.	min.	Typical value HBW
T4 <sup>a</sup>	$\leq 10$	140		70	-	15	13	55
T6 <sup>a</sup>	$\leq 5$	250	-	200	-	8	6	80
	$5 < t \leq 10$	225	-	180	-	8	6	80
Extruded profile <sup>b</sup>								
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness
		min.	max.	min.	max.	min.	min.	Typical value HBW
<i>Open profile</i> T4 <sup>a</sup>	$\leq 10$	140	-	70	-	15	13	55
<i>Open profile</i> T6 <sup>a</sup>	$\leq 5$	250	-	200	-	10	8	80
	$5 < t \leq 10$	225	-	180	-	8	6	80
<i>Hollow profile</i> T4 <sup>a</sup>	$\leq 10$	140	-	70	-	15	13	55
<i>Hollow profile</i> T6 <sup>a</sup>	$\leq 5$	250	-	200	-	8	6	80
	$5 < t \leq 10$	225	-	180	-	8	6	80
<sup>a</sup> Properties may be obtained by press quenching.								
<sup>b</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.								

**Table 34 — Alloy EN AW-6018 [Al Mg1SiPbMn]**

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.	
T6, T6510, T6511 <sup>c</sup>	$\leq 150$	$\leq 150$	310	-	260	-	8	6	-
	$150 < D \leq 200$	$150 < S \leq 200$	260	-	200	-	8	-	-
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	-
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	310	-	260	-	8	6	-
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 35 — Alloy EN AW-6023 [Al Si1Sn1MgBi]**

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.	
T6, T6510, T6511 <sup>c</sup>	$\leq 150$	$\leq 150$	320	-	270	-	10	8	-
Extruded tube									
Not specified									
Extruded profile									
Not specified									
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 36 — Alloy EN AW-6026 [Al MgSiBi]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness HBW Typical Value
	D <sup>a</sup>	S <sup>b</sup>	min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>	≤ 140	≤ 140	370	-	300	-	8	6	95
	140 < D ≤ 200	140 < S ≤ 200	340	-	250	-	8	6	90
	200 < D ≤ 250	200 < S ≤ 250	300	-	200	-	8	6	90
Extruded tube									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	HBW Typical Value	
		min.	max.	min.	max.	min.	min.		
T6, T6510, T6511 <sup>c</sup>	≤ 30	340	-	260	-	8	6	90	
Extruded Profile									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	HBW Typical Value	
		min.	max.	min.	max.	min.	min.		
T6, T6510, T6511 <sup>c</sup>	≤ 40	340	-	260	-	8	6	90	
<sup>a</sup> D = Diameter for round bar.									
<sup>b</sup> S = Width across flats for square and hexagonal bar, thickness for rectangular bar..									
<sup>c</sup> Properties may be obtained by press quenching									

**Table 37 — Alloy EN AW-6351 [Al Si1Mg0,5Mn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
O, H111	$\leq 200$	$\leq 200$	-	160	-	110	14	12	35
T4 <sup>c</sup>	$\leq 200$	$\leq 200$	205	-	110	-	14	12	67
T6 <sup>c</sup>	$\leq 20$	$\leq 20$	295	-	250	-	8	6	95
	$20 < D \leq 75$	$20 < S \leq 75$	300	-	255	-	8	-	95
	$75 < D \leq 150$	$75 < S \leq 150$	310	-	260	-	8	-	95
	$150 < D \leq 200$	$150 < S \leq 200$	280	-	240	-	6	-	95
	$200 < D \leq 250$	$200 < S \leq 250$	270	-	200	-	6	-	95
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 25$	-	160	-	110	14	12	35
T4 <sup>c</sup>		$\leq 25$	205	-	110	-	14	12	67
T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	300	-	255	-	10	8	95
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		all	-	160	-	110	14	12	35
T4 <sup>c</sup>		$\leq 25$	205	-	110	-	14	12	67
Open profile T5		$\leq 5$	270	-	230	-	8	6	90
Open profile T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	300	-	255	-	10	8	95
Hollow profile T5		$\leq 5$	270	-	230	-	8	6	90
Hollow profile T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	300	-	255	-	10	8	95
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 38 — Alloy EN AW-6056 [Al Si1MgCuMn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T4, T451, T4511 <sup>c</sup>	≤ 80	≤ 80	350	-	245	-	15	14	95
T6, T651, T6511 <sup>c</sup>	≤ 80	≤ 80	380	-	360	-	10	8	115
T78, T7851, T78511 <sup>c</sup>	≤ 80	≤ 80	360	-	335	-	10	8	105
Extruded profile									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW	
		min.	max.	min.	max.				
T4, T4510, T4511 <sup>c</sup>	≤ 10	350	-	245	-	15	14	95	
T6, T6510, T6511 <sup>c</sup>	≤ 10	380	-	360	-	10	8	115	
T78, T78510, T78511 <sup>c</sup>	≤ 10	360	-	335	-	10	8	105	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 39 — Alloy EN AW-6060 [Al MgSi]**

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	mm		MPa		MPa		%	%	Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>	≤ 150	≤ 150	120	-	60	-	16	14	50
T5	≤ 150	≤ 150	160	-	120	-	8	6	60
T6 <sup>c</sup>	≤ 150	≤ 150	190	-	150	-	8	6	70
T64 <sup>c d</sup>	≤ 50	≤ 50	180	-	120	-	12	10	60
T66 <sup>c</sup>	≤ 150	≤ 150	215	-	160	-	8	6	75
Extruded tube									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	MPa		MPa		%	%	Typical value HBW
			min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>		≤ 15	120	-	60	-	16	14	50
T5		≤ 15	160	-	120	-	8	6	60
T6 <sup>c</sup>		≤ 15	190	-	150	-	8	6	70
T64 <sup>c d</sup>		≤ 15	180	-	120	-	12	10	60
T66 <sup>c</sup>		≤ 15	215	-	160	-	8	6	75
Extruded profile <sup>e</sup>									
Temper	Wall thickness		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	$t$	mm	MPa		MPa		%	%	Typical value HBW
			min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>		≤ 25	120	-	60	-	16	14	50
T5		≤ 5	160	-	120	-	8	6	60
		5 < $t$ ≤ 25	140	-	100	-	8	6	60
T6 <sup>c</sup>		≤ 5	190	-	150	-	8	6	70
		5 < $t$ ≤ 25	170	-	140	-	8	6	70
T64 <sup>c d</sup>		≤ 15	180	-	120	-	12	10	60
T66 <sup>c</sup>		≤ 5	215	-	160	-	8	6	75
		5 < $t$ ≤ 25	195	-	150	-	8	6	75
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> Bending quality.									
<sup>e</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									



**Table 40 — Alloy EN AW-6360 [Al SiMgMn]**

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.	
T4 <sup>c</sup>	≤ 150	≤ 150	110	-	50	-	16	14	40
T5	≤ 150	≤ 150	150	-	110	-	8	6	50
T6 <sup>c</sup>	≤ 150	≤ 150	185	-	140	-	8	6	60
T66 <sup>c</sup>	≤ 150	≤ 150	195	-	150	-	8	6	65
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.	min.	
T4 <sup>c</sup>	≤ 15		110	-	50	-	16	14	40
T5	≤ 15		150	-	120	-	8	6	50
T6 <sup>c</sup>	≤ 15		185	-	140	-	8	6	60
T66 <sup>c</sup>	≤ 15		195	-	150	-	8	6	65
Extruded profile <sup>d</sup>									
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.	min.	
T4 <sup>c</sup>	≤ 25		110	-	50	-	16	14	40
T5	≤ 25		150	-	110	-	8	6	50
T6 <sup>c</sup>	≤ 25		185	-	140	-	8	6	60
T66 <sup>c</sup>	≤ 25		195	-	150	-	8	6	65
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 41 — Alloy EN AW-6061 [Al Mg1SiCu]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
O, H111	≤ 200	≤ 200	-	150	-	110	16	14	30
T4 <sup>c</sup>	≤ 200	≤ 200	180	-	110	-	15	13	65
T6 <sup>c</sup>	≤ 200	≤ 200	260	-	240	-	8	6	95
Extruded tube									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW	
		min.	max.	min.	max.	min.	min.		
O, H111	≤ 25	-	150	-	110	16	14	30	
T4 <sup>c</sup>	≤ 25	180	-	110	-	15	13	65	
T6 <sup>c</sup>	≤ 5	260	-	240	-	8	6	95	
	$5 < t \leq 25$	260	-	240	-	10	8	95	
Extruded profile <sup>d</sup>									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW	
		min.	max.	min.	max.	min.	min.		
T4 <sup>c</sup>	≤ 25	180	-	110	-	15	13	65	
T6 <sup>c</sup>	≤ 5	260	-	240	-	9	7	95	
	$5 < t \leq 25$	260	-	240	-	10	8	95	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

Table 42 — Alloy EN AW-6261 [Al Mg1SiCuMn]

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.	
O, H111	$\leq 100$	$\leq 100$	-	170	-	120	14	12	-
T4 <sup>c</sup>	$\leq 100$	$\leq 100$	180	-	100	-	14	12	-
T6 <sup>c</sup>	$\leq 20$	$\leq 20$	290	-	245	-	8	7	100
	$20 < D \leq 100$	$20 < S \leq 100$	290	-	245	-	8	-	100
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 10$	-	170	-	120	14	12	-
T4 <sup>c</sup>		$\leq 10$	180	-	100	-	14	12	-
T5		$\leq 5$	270	-	230	-	8	7	-
		$5 < t \leq 10$	260	-	220	-	9	8	-
T6 <sup>c</sup>		$\leq 5$	290	-	245	-	8	7	100
		$5 < t \leq 10$	290	-	245	-	9	8	100
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		all	-	170	-	120	14	12	-
T4 <sup>c</sup>		$\leq 25$	180	-	100	-	14	12	-
Open profile T5		$\leq 5$	270	-	230	-	8	7	-
		$5 < t \leq 25$	260	-	220	-	9	8	-
		$> 25$	250	-	210	-	9	-	-
Open profile T6 <sup>c</sup>		$\leq 5$	290	-	245	-	8	7	100
		$5 < t \leq 25$	280	-	235	-	8	7	100
Hollow profile T5		$\leq 5$	270	-	230	-	8	7	-
		$5 < t \leq 10$	260	-	220	-	9	8	-
Hollow profile T6 <sup>c</sup>		$\leq 5$	290	-	245	-	8	7	100
		$5 < t \leq 10$	270	-	230	-	9	8	100
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 43 — Alloy EN AW-6262 [Al Mg1SiPb]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>	≤ 200	≤ 200	260	-	240	-	10	8	75
Extruded tube									
Temper	$t$ mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 25	260	-	240	-	10	8	75
Extruded profile									
Temper	$t$ mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 25	260	-	240	-	10	8	75
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 44 — Alloy EN AW-6262A [Al Mg1SiSn]**

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
T6 <sup>c</sup>	≤ 220	≤ 155	260	-	240	-	10	8	-
Extruded tube									
Not specified									
Extruded profile									
Temper	Wall thickness $t$ mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW	
		min.	max.	min.	max.				
T6 <sup>c</sup>	≤ 25	260	-	240	-	10	8	-	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

Table 45 — Alloy EN AW-6063 [Al Mg0,7Si]

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.			
O, H111	$\leq 200$	$\leq 200$	-	130	-	-	18	16	25
T4 <sup>c</sup>	$\leq 150$	$\leq 150$	130	-	65	-	14	12	50
	$150 < D \leq 200$	$150 < S \leq 200$	120	-	65	-	12	-	50
T5	$\leq 200$	$\leq 200$	175	-	130	-	8	6	65
T6 <sup>c</sup>	$\leq 150$	$\leq 150$	215	-	170	-	10	8	75
	$150 < D \leq 200$	$150 < S \leq 200$	195	-	160	-	10	-	75
T66 <sup>c</sup>	$\leq 200$	$\leq 200$	245	-	200	-	10	8	80
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
O, H111		$\leq 25$	-	130	-	-	18	16	25
T4 <sup>c</sup>		$\leq 10$	130	-	65	-	14	12	50
		$10 < t \leq 25$	120	-	65	-	12	10	50
T5		$< 25$	175	-	130	-	8	6	65
T6 <sup>c</sup>		$\leq 25$	215	-	170	-	10	8	75
T66 <sup>c</sup>		$\leq 25$	245	-	200	-	10	8	80
Extruded profile <sup>e</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ % min.	$A_{50\text{ mm}}$ % min.	Hardness Typical value HBW
			min.	max.	min.	max.			
T4 <sup>c</sup>		$\leq 25$	130	-	65	-	14	12	50
T5		$\leq 10$	175	-	130	-	8	6	65
		$10 < t \leq 25$	160	-	110	-	7	5	65
T6 <sup>c</sup>		$\leq 10$	215	-	170	-	8	6	75
		$10 < t \leq 25$	195	-	160	-	8	6	75
T64 <sup>c,d</sup>		$\leq 15$	180	-	120	-	12	10	65
T66 <sup>c</sup>		$\leq 10$	245	-	200	-	8	6	80
		$10 < t \leq 25$	225	-	180	-	8	6	80

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> Properties may be obtained by press quenching.

<sup>d</sup> Bending quality.

<sup>e</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.

**Table 46 — Alloy EN AW-6063A [Al Mg0,7Si(A)]**

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.	
O, H111	$\leq 200$	$\leq 200$	-	150	-	-	16	14	28
T4 <sup>c</sup>	$\leq 150$	$\leq 150$	150	-	90	-	12	10	50
	$150 < D \leq 200$	$150 < S \leq 200$	140	-	90	-	10	-	50
T5	$\leq 200$	$\leq 200$	200	-	160	-	7	5	75
T6 <sup>c</sup>	$\leq 150$	$\leq 150$	230	-	190	-	7	5	80
	$150 < D \leq 200$	$150 < S \leq 200$	220	-	160	-	7	-	80
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 25$	-	150	-	-	16	14	28
T4 <sup>c</sup>		$\leq 10$	150	-	90	-	12	10	50
		$10 < t \leq 25$	140	-	90	-	10	8	50
T5		$\leq 25$	200	-	160	-	7	5	75
T6 <sup>c</sup>		$\leq 25$	230	-	190	-	7	5	80
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>		$\leq 25$	150	-	90	-	12	10	50
T5		$\leq 10$	200	-	160	-	7	5	75
		$10 < t \leq 25$	190	-	150	-	6	4	75
T6 <sup>c</sup>		$\leq 10$	230	-	190	-	7	5	80
		$10 < t \leq 25$	220	-	180	-	5	4	80
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

Table 47 — Alloy EN AW-6463 [Al Mg0,7Si(B)]

Extruded rod/bar									
Temper	Dimensions		$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
	mm		MPa		MPa		%	%	Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T4 <sup>c</sup>	≤ 150	≤ 150	125	-	75	-	14	12	46
T5	≤ 150	≤ 150	150	-	110	-	8	6	60
T6 <sup>c</sup>	≤ 150	≤ 150	195	-	160	-	10	8	74
Extruded tube									
Temper	$t$	Wall thickness	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
		mm	min.	max.	min.	max.	%	%	Typical value HBW
T6 <sup>c</sup>		≤ 25	195	-	160	-	10	8	74
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness	$R_m$		$R_{p0,2}$		$A$	$A_{50\text{ mm}}$	Hardness
		mm	min.	max.	min.	max.	%	%	Typical value HBW
T4 <sup>c</sup>		≤ 50	125	-	75	-	14	12	46
T5		≤ 50	150	-	110	-	8	6	60
T6 <sup>c</sup>		≤ 50	195	-	160	-	10	8	74
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									
<sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 48 — Alloy EN AW-6064A [Al Mg1SiBi]**

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.	
T6, T6510, T6511 <sup>c</sup>	≤ 140	≤ 140	310	-	260	-	8	6	95
	140 < $D$ ≤ 250	140 < $S$ ≤ 250	260	-	240	-	8	6	90
Extruded tube									
Temper	$t$  mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		≤ 30	310	-	260	-	8	6	90
Extruded profile									
Temper	$t$  mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		≤ 40	310	-	260	-	8	6	90
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Characteristics may be obtained by tempering under press.									

**Table 49 — Alloy EN AW-6065 [Al Mg1Bi1Si]**

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.	
T6 <sup>c</sup>	≤ 220	≤ 155	260	-	240	-	10	8	-
Extruded tube									
Not specified									
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.	min.	
T6 <sup>c</sup>	≤ 25		260	-	240	-	10	8	-
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									



**Table 50 — Alloy EN AW-6081 [Al Si0,9MgMn]**

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.	
T6 <sup>c</sup>	≤ 250	≤ 250	275	-	240	-	8	6	95
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.	min.	
T6 <sup>c</sup>	≤ 25		275	-	240	-	8	6	95
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.	min.	
<i>Open profile</i> T6 <sup>c</sup>	≤ 25		275	-	240	-	8	6	95
<i>Hollow profile</i> T6 <sup>c</sup>	≤ 15		275	-	240	-	8	6	95
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 51 — Alloy EN AW-6082 [Al Si1MgMn]**

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.	
O, H111	$\leq 200$	$\leq 200$	-	160	-	110	14	12	35
T4 <sup>c</sup>	$\leq 200$	$\leq 200$	205	-	110	-	14	12	70
T6 <sup>c</sup>	$\leq 20$	$\leq 20$	295	-	250	-	8	6	95
	$20 < D \leq 150$	$20 < S \leq 150$	310	-	260	-	8	-	95
	$150 < D \leq 200$	$150 < S \leq 200$	280	-	240	-	6	-	95
	$200 < D \leq 250$	$200 < S \leq 250$	270	-	200	-	6	-	95
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 25$	-	160	-	110	14	12	35
T4 <sup>c</sup>		$\leq 25$	205	-	110	-	14	12	70
T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	310	-	260	-	10	8	95
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		all	-	160	-	110	14	12	35
T4 <sup>c</sup>		$\leq 25$	205	-	110	-	14	12	70
Open profile T5		$\leq 5$	270	-	230	-	8	6	90
Open profile T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 25$	310	-	260	-	10	8	95
Hollow profile T5		$\leq 5$	270	-	230	-	8	6	90
Hollow profile T6 <sup>c</sup>		$\leq 5$	290	-	250	-	8	6	95
		$5 < t \leq 15$	310	-	260	-	10	8	95

<sup>a</sup>  $D$  = Diameter for round bar.

<sup>b</sup>  $S$  = Width across flats for square and hexagonal bar, thickness for rectangular bar.

<sup>c</sup> Properties may be obtained by press quenching.

<sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.

**Table 52 — Alloy EN AW-6182 [Al Si1MgZr]**

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.	
T4 <sup>c</sup>	$\leq 220$	$\leq 155$	205	-	110	-	12	10	-
T6 <sup>c, d</sup>	$9 < D \leq 100$	$9 < S \leq 100$	360	-	330	-	9	7	-
	$100 < D \leq 150$	$100 < S \leq 150$	330	-	300	-	8	6	-
	$150 < D \leq 220$	$150 < S \leq 220$	280	-	240	-	6	4	-
Extruded tube Not specified									
Extruded profile Not specified									
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> Properties obtained by the user, however, may be lower than those listed if the material has been formed or otherwise cold or hot worked, particularly in the annealed temper, prior to normal solution heat treatment.									

**Table 53 — Alloy EN AW-7003 [Al Zn6Mg0,8Zr]**

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.	
T5	all	all	310	-	260	-	10	8	-
T6 <sup>c</sup>	$\leq 50$	$\leq 50$	350	-	290	-	10	8	110
	$50 < D \leq 150$	$50 < S \leq 150$	340	-	280	-	10	8	110
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T5		all	310	-	260	-	10	8	-
T6 <sup>c</sup>		$\leq 10$	350	-	290	-	10	8	110
		$10 < t \leq 25$	340	-	280	-	10	8	110
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T5		all	310	-	260	-	10	8	-
T6 <sup>c</sup>		$\leq 10$	350	-	290	-	10	8	110
		$10 < t \leq 25$	340	-	280	-	10	8	110
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching. <sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

**Table 54 — Alloy EN AW-7005 [Al Zn4,5Mg1,5Mn]**

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.	
T6 <sup>c</sup>	≤ 50	≤ 50	350	-	290	-	10	8	110
	50 < $D$ ≤ 200	50 < $S$ ≤ 200	340	-	270	-	10	-	110
Extruded tube									
Temper	$t$  mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 15	350	-	290	-	10	8	110
Extruded profile									
Temper	$t$  mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 40	350	-	290	-	10	8	110
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 55 — Alloy EN AW-7108 [Al Zn5Mg1Zr]**

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.	
T6 <sup>c</sup>	≤ 100	≤ 100	310	-	260		10	8	90
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.	min.		
T6 <sup>c</sup>	≤ 20	310	-	260	-	10	8	90	
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.	min.		
T6 <sup>c</sup>	≤ 30	310	-	260	-	10	8	90	
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 56 — Alloy EN AW-7108A [Al Zn5Mg1Zr(A)]**

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.	
T6 <sup>c</sup>	≤ 200	≤ 200	310	-	260		12	10	90
T66 <sup>c</sup>	≤ 50	≤ 50	350	-	290	-	10	8	105
	50 < $D$ ≤ 200	50 < $S$ ≤ 200	340	-	275	-	10	-	105
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 20	310	-	260	-	12	10	90
T66 <sup>c</sup>		≤ 20	350	-	290	-	10	8	105
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6 <sup>c</sup>		≤ 40	310	-	260	-	12	10	90
T66 <sup>c</sup>		≤ 40	350	-	290	-	10	8	105
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 57 — Alloy EN AW-7020 [Al Zn4,5Mg1]**

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.			
T6 <sup>c</sup>	≤ 50	≤ 50	350	-	290	-	10	8	110
	50 < $D$ ≤ 200	50 < $S$ ≤ 200	340	-	275	-	10	-	110
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.			
T6 <sup>c</sup>		≤ 15	350	-	290	-	10	8	110
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.			
T6 <sup>c</sup>		≤ 40	350	-	290	-	10	8	110
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

**Table 58 — Alloy EN AW-7021 [Al Zn5,5Mg1,5]**

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.			
T6 <sup>c</sup>	≤ 40	≤ 40	410	-	350	-	10	8	120
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.			
T6 <sup>c</sup>		≤ 10	410	-	350	-	10	8	120
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.			
T6 <sup>c</sup>		≤ 20	410	-	350	-	10	8	120
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> Properties may be obtained by press quenching.									

Table 59 — Alloy EN AW-7022 [Al Zn5Mg3Cu]

Extruded rod/bar									
Temper	Dimensions mm		$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
	$D^a$	$S^b$	min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>	$\leq 80$	$\leq 80$	490	-	420	-	7	5	133
	$80 < D \leq 200$	$80 < S \leq 200$	470	-	400	-	7	-	
Extruded tube									
Temper	$t$  mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	490	-	420	-	7	5	133
Extruded profile									
Temper	$t$  mm	Wall thickness	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	<b>Hardness</b> Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511 <sup>c</sup>		$\leq 30$	490	-	420	-	7	5	133
<sup>a</sup> $D$ = Diameter for round bar.									
<sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									
<sup>c</sup> Properties may be obtained by press quenching.									

**Table 60 — Alloy EN AW-7049A [Al Zn8MgCu]**

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.	
T6, T6510, T6511	$\leq 100$	$\leq 100$	610	-	530	-	5	4	170
	$100 < D \leq 125$	$100 < S \leq 125$	560	-	500	-	5	-	170
	$125 < D \leq 150$	$125 < S \leq 150$	520	-	430	-	5	-	170
	$150 < D \leq 180$	$150 < S \leq 180$	450	-	400	-	3	-	170
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511		$\leq 30$	610	-	530	-	5	4	170
Extruded profile									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50 \text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511		$\leq 30$	610	-	530	-	5	4	170
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar.									



Table 61 — EN AW-7075 [Al Zn5,5MgCu]

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.	
O, H111	$\leq 200$	$\leq 200$	-	275	-	165	10	8	60
T6, T6510, T6511	$\leq 25$	$\leq 25$	540	-	480	-	7	5	150
	$25 < D \leq 100$	$25 < S \leq 100$	560	-	500	-	7	-	150
	$100 < D \leq 150$	$100 < S \leq 150$	550	-	440	-	5	-	150
	$150 < D \leq 200$	$150 < S \leq 200$	440	-	400	-	5	-	150
T73, T73510, T73511 <sup>c</sup>	$\leq 25$	$\leq 25$	485	-	420	-	7	5	135
	$25 < D \leq 75$	$25 < S \leq 75$	475	-	405	-	7	-	135
	$75 < D \leq 100$	$75 < S \leq 100$	470	-	390	-	6	-	135
	$100 < D \leq 150$	$100 < S \leq 150$	440	-	360	-	6	-	135
Extruded tube									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
O, H111		$\leq 10$	-	275	-	165	10	-	60
T6, T6510, T6511		$\leq 5$	540	-	485	-	8	6	150
		$5 < t \leq 10$	560	-	505	-	7	5	150
		$10 < t \leq 50$	560	-	495	-	6	4	150
T73, T73510, T73511 <sup>c</sup>		$\leq 5$	470	-	400	-	7	5	135
		$5 < t \leq 25$	485	-	420	-	8	6	135
		$25 < t \leq 50$	475	-	405	-	8	-	135
Extruded profile <sup>d</sup>									
Temper	$t$	Wall thickness mm	$R_m$ MPa		$R_{p0,2}$ MPa		$A$ %	$A_{50\text{ mm}}$ %	Hardness Typical value HBW
			min.	max.	min.	max.	min.	min.	
T6, T6510, T6511		$\leq 25$	530	-	460	-	6	4	150
		$25 < t \leq 60$	540	-	470	-	6	-	150
T73, T73510, T73511 <sup>c</sup>		$\leq 25$	485	-	420	-	7	5	135
<sup>a</sup> $D$ = Diameter for round bar. <sup>b</sup> $S$ = Width across flats for square and hexagonal bar, thickness for rectangular bar. <sup>c</sup> For materials of thickness 20 mm or above, see EN 755-1, with respect to stress corrosion cracking resistance. <sup>d</sup> If a profile cross section comprises different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile cross section.									

## Annex A (informative)

### List of tempers used in Tables 1 to 61 (extract of EN 515)

Temper	
Symbol	Definition
F	as fabricated (no mechanical property limits specified)
O	annealed - products achieving the required annealed properties after hot forming processes may be designated as O temper
H111	annealed and slightly strain-hardened (less than H11) during subsequent operations such as stretching or straightening
H112	slightly strain-hardened from working at an elevated temperature or from a limited amount of cold work (mechanical property limits specified), such as stretching or straightening
T3	solution heat-treated, cold worked and naturally aged
T3510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %) and naturally aged The products receive no further straightening after stretching.
T3511	same as T3510 except that minor straightening is allowed after stretching to comply with standard tolerances
T4	solution heat-treated and naturally aged
T4510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %) and naturally aged The products receive no further straightening after stretching.
T4511	same as T4510 except that minor straightening is allowed after stretching to comply with standard tolerances
T5	cooled from an elevated temperature shaping process and then artificially aged
T6	solution heat-treated and then artificially aged
T64	solution heat-treated and then artificially aged in underageing conditions (between T6 and T61) to improve formability
T6510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %) and then artificially aged The products receive no further straightening after stretching.
T6511	same as T6510 except that minor straightening is allowed after stretching to comply with standard tolerances
T66	solution heat-treated and then artificially aged - mechanical property level higher than T6 achieved through special control of the process (6000 series alloys)
T7	solution heat-treated and then artificially overaged
T73	solution heat-treated and then artificially overaged in order to achieve the best stress corrosion resistance
T73510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %)

<b>Temper</b>	
<b>Symbol</b>	<b>Definition</b>
	and then artificially overaged in order to achieve the best stress corrosion resistance The products receive no further straightening after stretching.
T73511	same as T73510 except that minor straightening is allowed after stretching to comply with standard tolerances
T8	solution heat-treated, cold worked and then artificially aged
T8510	solution heat-treated, stress-relieved by stretching a controlled amount (permanent set 1 % to 3 %) and then artificially aged The products receive no further straightening after stretching.
T8511	same as T8510 except that minor straightening is allowed after stretching to comply with standard tolerances

## Bibliography

- [1] EN 515, *Aluminium and aluminium alloys - Wrought products - Temper designations*
- [2] EN 573-3, *Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition and form of products*



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