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BSI Standards Publication

Aluminium and aluminium alloys — Sheet, strip and plate

Part 2: Mechanical properties

bsi.

National foreword

This British Standard is the UK implementation of EN 485-2:2016. It supersedes BS EN 485-2:2013 which is withdrawn.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.

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Aluminium et alliages d'aluminium - Tôles, bandes et tôles épaisses - Partie 2: Caractéristiques mécaniques

Aluminium und Aluminiumlegierungen - Bänder, Bleche und Platten - Teil 2: Mechanische Eigenschaften

This European Standard was approved by CEN on 12 June 2016.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 485-2:2016) 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of an identical text or by endorsement, at the latest by January 2017, and conflicting national standards shall be withdrawn at the latest by January 2017.

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

This document supersedes EN 485-2:2013.

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Details of any patents rights identified during the development of this document will be in the CEN list of patent declaration received (see http://www.cencenelec.eu/ipr/Patents/PatentDeclaration/Pages/default.aspx).

CEN/TC 132 decided to revise EN 485-2:2013 as follows:

— Addition of Alloy EN AW-5042 [AlMg 3,5 Mn] in Table 24;

— Correction of Alloy EN AW-5059 [Al Mg5,5MnZnZr] in Table 28;

— Correction of Alloy EN AW-5083 [Al Mg4,5Mn0,7] in Table 30;

— Correction of Alloy EN AW-5086 [Al Mg4] in Table 31;

— Correction of Alloy EN AW-5088 [AlMg5Mn0,4] in Table 32;

— Correction of Alloy EN AW-5383 [Al Mg4,5Mn0,9] in Table 36;

— Correction of Alloy EN AW-5456 [Al Mg5Mn1] in Table 40;

— Addition of alloy EN AW-5657 [Al 99,85Mg1] in a new Table 41;

— Addition of alloy EN AW-6056 [Al Si1MgCuMn] in a new Table 45;

— Addition of alloy EN AW-7019 [Al Zn4Mg2] in a new Table 49;

— Correction of the headers in the last column “hardness” in all tables (index a).

EN 485 comprises the following parts under the general title, “*Aluminium and aluminium alloys — Sheet, strip and plate*”:

— *Part 1: Technical conditions for inspection and delivery*

— *Part 2: Mechanical properties*

— *Part 3: Tolerances on dimensions and form for hot-rolled products*

— *Part 4: Tolerances on shape and dimensions for cold-rolled products*

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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 properties of wrought aluminium and wrought aluminium alloy sheet, strip and plate for general engineering applications.

It does not apply to semi-finished rolled products in coiled form to be subjected to further rolling (reroll stock) or to special products such as corrugated, embossed, painted, sheets and strips or to special applications such as aerospace, can stock, finstock, for which mechanical properties are specified in separate European Standards.

The chemical composition limits of the alloys are specified in EN 573-3. Temper designations are defined in EN 515.

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 13195, *Aluminium and aluminium alloys - Specifications for wrought and cast products for marine applications (shipbuilding, marine and offshore)*

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

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

3 Requirements

The mechanical properties shall be in conformity with those specified in Clause 4 or those agreed upon between supplier and purchaser and stated on the order document.

4 List of alloys with mechanical property limits

4.1 General

Table 1 to Table 54 contain mechanical property limits values obtained by tensile testing according to EN ISO 6892-1 after sampling and after sample preparation according to EN 485-1.

They also contain values of bend radius and hardness following sampling and test methods as described in EN 485-1. These values are for information only.

For some alloys they contain provisions related to inter-granular corrosion, exfoliation corrosion or stress corrosion testing, see also EN 485-1.

4.2 Elongation

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

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

4.3 List of alloys and their mechanical properties

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

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
F[a]	≥ 2,5	150,0	60								
O	0,2	0,5	65	95	20		20		0 t	0 t	20
	0,5	1,5	65	95	20		22		0 t	0 t	20
	1,5	3,0	65	95	20		26		0 t	0 t	20
	3,0	6,0	65	95	20		29		0,5 t	0,5 t	20
	6,0	12,5	65	95	20		35		1,0 t	1,0 t	20
	12,5	80,0	65	95	20			32			20
H111	0,2	0,5	65	95	20		20		0 t	0 t	20
	0,5	1,5	65	95	20		22		0 t	0 t	20
	1,5	3,0	65	95	20		26		0 t	0 t	20
	3,0	6,0	65	95	20		29		0,5 t	0,5 t	20
	6,0	12,5	65	95	20		35		1,0 t	1,0 t	20
	12,5	80,0	65	95	20			32			20
H112	≥ 6,0	12,5	75		30		20				23
	12,5	80,0	70		25			20			22
H12	0,2	0,5	85	125	65		2		0,5 t	0 t	28
	0,5	1,5	85	125	65		4		0,5 t	0 t	28
	1,5	3,0	85	125	65		5		0,5 t	0,5 t	28
	3,0	6,0	85	125	65		7		1,0 t	1,0 t	28
	6,0	12,5	85	125	65		9			2,0 t	28
	12,5	40,0	85	125	65			9			28
H14	0,2	0,5	105	145	85		2		1,0 t	0 t	34
	0,5	1,5	105	145	85		2		1,0 t	0,5 t	34
	1,5	3,0	105	145	85		4		1,0 t	1,0 t	34
	3,0	6,0	105	145	85		5			1,5 t	34
	6,0	12,5	105	145	85		6			2,5 t	34
	12,5	25,0	105	145	85			6			34
H16	0,2	0,5	120	160	100		1			0,5 t	39
	0,5	1,5	120	160	100		2			1,0 t	39

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
	1,5	4,0	120	160	100		3			1,5 t	39
H18	0,2	0,5	135		120		1			1,0 t	42
	0,5	1,5	140		120		2			2,0 t	42
	1,5	3,0	140		120		2			3,0 t	42
H19	0,2	0,5	155		140		1				45
	0,5	1,5	150		130		1				45
	1,5	3,0	150		130		1				45
H22	0,2	0,5	85	125	55		4		0,5 t	0 t	27
	0,5	1,5	85	125	55		5		0,5 t	0 t	27
	1,5	3,0	85	125	55		6		0,5 t	0,5 t	27
	3,0	6,0	85	125	55		11		1,0 t	1,0 t	27
	6,0	12,5	85	125	55		12			2,0 t	27
H24	0,2	0,5	105	145	75		3		1,0 t	0 t	33
	0,5	1,5	105	145	75		4		1,0 t	0,5 t	33
	1,5	3,0	105	145	75		5		1,0 t	1,0 t	33
	3,0	6,0	105	145	75		8		1,5 t	1,5 t	33
	6,0	12,5	105	145	75		8			2,5 t	33
H26	0,2	0,5	120	160	90		2			0,5 t	38
	0,5	1,5	120	160	90		3			1,0 t	38
	1,5	4,0	120	160	90		4			1,5 t	38
H28	0,2	0,5	140		110		2			1,0 t	41
	0,5	1,5	140		110		2			2,0 t	41
	1,5	3,0	140		110		3			3,0 t	41

[a] For information only.

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

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	25,0	60								
O	0,2	0,5	60	90	15		23		0 t	0 t	18
	0,5	1,5	60	90	15		25		0 t	0 t	18
	1,5	3,0	60	90	15		29		0 t	0 t	18
	3,0	6,0	60	90	15		32		0,5 t	0,5 t	18
	6,0	12,5	60	90	15		35		0,5 t	0,5 t	18
	12,5	25,0	60	90	15			32			18
H111	0,2	0,5	60	90	15		23		0 t	0 t	18
	0,5	1,5	60	90	15		25		0 t	0 t	18
	1,5	3,0	60	90	15		29		0 t	0 t	18
	3,0	6,0	60	90	15		32		0,5 t	0,5 t	18
	6,0	12,5	60	90	15		35		0,5 t	0,5 t	18
	12,5	25,0	60	90	15			32			18
H112	≥ 6,0	12,5	70		20		20				
	12,5	25,0	70					20			
H12	0,2	0,5	80	120	55		5		0,5 t	0 t	26
	0,5	1,5	80	120	55		6		0,5 t	0 t	26
	1,5	3,0	80	120	55		7		0,5 t	0,5 t	26
	3,0	6,0	80	120	55		9			1,0 t	26
	6,0	12,5	80	120	55		12			2,0 t	26
H14	0,2	0,5	100	140	70		4		0,5 t	0 t	32
	0,5	1,5	100	140	70		4		0,5 t	0,5 t	32
	1,5	3,0	100	140	70		5		1,0 t	1,0 t	32
	3,0	6,0	100	140	70		6			1,5 t	32
	6,0	12,5	100	140	70		7			2,5 t	32
H16	0,2	0,5	110	150	90		2		1,0 t	0,5 t	36
	0,5	1,5	110	150	90		2		1,0 t	1,0 t	36
	1,5	4,0	110	150	90		3		1,0 t	1,0 t	36
H18	0,2	0,5	125		105		2			1,0 t	40

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
	0,5	1,5	125		105		2			2,0 t	40
	1,5	3,0	125		105		2			2,5 t	40
H22	0,2	0,5	80	120	50		7		0,5 t	0 t	26
	0,5	1,5	80	120	50		8		0,5 t	0 t	26
	1,5	3,0	80	120	50		10		0,5 t	0,5 t	26
	3,0	6,0	80	120	50		12			1,0 t	26
	6,0	12,5	80	120	50		15			2,0 t	26
H24	0,2	0,5	100	140	60		5		0,5 t	0 t	31
	0,5	1,5	100	140	60		6		0,5 t	0,5 t	31
	1,5	3,0	100	140	60		7		1,0 t	1,0 t	31
	3,0	6,0	100	140	60		9			1,5 t	31
	6,0	12,5	100	140	60		11			2,5 t	31
H26	0,2	0,5	110	150	80		3			0,5 t	35
	0,5	1,5	110	150	80		3			1,0 t	35
	1,5	4,0	110	150	80		4			1,0 t	35

a For information only.

Table 3 — Aluminium EN AW-1080A [Al 99,8(A)]

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	25,0	60								
O	0,2	0,5	60	90	15		26		0 t	0 t	18
	0,5	1,5	60	90	15		28		0 t	0 t	18
	1,5	3,0	60	90	15		31		0 t	0 t	18
	3,0	6,0	60	90	15		35		0,5 t	0,5 t	18
	6,0	12,5	60	90	15		35		0,5 t	0,5 t	18
H111	0,2	0,5	60	90	15		26		0 t	0 t	18
	0,5	1,5	60	90	15		28		0 t	0 t	18
	1,5	3,0	60	90	15		31		0 t	0 t	18
	3,0	6,0	60	90	15		35		0,5 t	0,5 t	18
	6,0	12,5	60	90	15		35		0,5 t	0,5 t	18
H112	≥ 6,0	12,5	70				20				
	12,5	25,0	70					20			
H12	0,2	0,5	80	120	55		5		0,5 t	0 t	26
	0,5	1,5	80	120	55		6		0,5 t	0 t	26
	1,5	3,0	80	120	55		7		0,5 t	0,5 t	26
	3,0	6,0	80	120	55		9			1,0 t	26
	6,0	12,5	80	120	55		12			2,0 t	26
H14	0,2	0,5	100	140	70		4		0,5 t	0 t	32
	0,5	1,5	100	140	70		4		0,5 t	0,5 t	32
	1,5	3,0	100	140	70		5		1,0 t	1,0 t	32
	3,0	6,0	100	140	70		6			1,5 t	32
	6,0	12,5	100	140	70		7			2,5 t	32
H16	0,2	0,5	110	150	90		2		1,0 t	0,5 t	36
	0,5	1,5	110	150	90		2		1,0 t	1,0 t	36
	1,5	4,0	110	150	90		3		1,0 t	1,0 t	36
H18	0,2	0,5	125		105		2			1,0 t	40
	0,5	1,5	125		105		2			2,0 t	40
	1,5	3,0	125		105		2			2,5 t	40

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H22	0,2	0,5	80	120	50		8		0,5 t	0 t	26
	0,5	1,5	80	120	50		9		0,5 t	0 t	26
	1,5	3,0	80	120	50		11		0,5 t	0,5 t	26
	3,0	6,0	80	120	50		13			1,0 t	26
	6,0	12,5	80	120	50		15			2,0 t	26
H24	0,2	0,5	100	140	60		5		0,5 t	0 t	31
	0,5	1,5	100	140	60		6		0,5 t	0,5 t	31
	1,5	3,0	100	140	60		7		1,0 t	1,0 t	31
	3,0	6,0	100	140	60		9			1,5 t	31
	6,0	12,5	100	140	60		11			2,5 t	31
H26	0,2	0,5	110	150	80		3			0,5 t	35
	0,5	1,5	110	150	80		3			1,0 t	35
	1,5	4,0	110	150	80		4			1,0 t	35

[a] For information only.

Table 4 — Aluminium EN AW-1200 [Al 99,0]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	150,0	75								
O	0,2	0,5	75	105	25		19		0 t	0 t	23
	0,5	1,5	75	105	25		21		0 t	0 t	23
	1,5	3,0	75	105	25		24		0 t	0 t	23
	3,0	6,0	75	105	25		28		0,5 t	0,5 t	23
	6,0	12,5	75	105	25		33		1,0 t	1,0 t	23
	12,5	80,0	75	105	25			30			23
H111	0,2	0,5	75	105	25		19		0 t	0 t	23
	0,5	1,5	75	105	25		21		0 t	0 t	23
	1,5	3,0	75	105	25		24		0 t	0 t	23
	3,0	6,0	75	105	25		28		0,5 t	0,5 t	23
	6,0	12,5	75	105	25		33		1,0 t	1,0 t	23
	12,5	80,0	75	105	25			30			23
H112	≥ 6,0	12,5	85		35		16				26
	12,5	80,0	80		30			16			24
H12	0,2	0,5	95	135	75		2		0,5 t	0 t	31
	0,5	1,5	95	135	75		4		0,5 t	0 t	31
	1,5	3,0	95	135	75		5		0,5 t	0,5 t	31
	3,0	6,0	95	135	75		6		1,0 t	1,0 t	31
	6,0	12,5	95	135	75		8			2,0 t	31
	12,5	40,0	95	135	75			8			31
H14	0,2	0,5	105	155	95		1		1,0 t	0 t	37
	0,5	1,5	115	155	95		3		1,0 t	0,5 t	37
	1,5	3,0	115	155	95		4		1,0 t	1,0 t	37
	3,0	6,0	115	155	95		5		1,5 t	1,5 t	37
	6,0	12,5	115	155	90		6			2,5 t	37
	12,5	25,0	115	155	90			6			37
H16	0,2	0,5	120	170	110		1			0,5 t	42
	0,5	1,5	130	170	115		2			1,0 t	42
	1,5	4,0	130	170	115		3			1,5 t	42

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H18	0,2	0,5	150		130		1			1,0 t	45
	0,5	1,5	150		130		2			2,0 t	45
	1,5	3,0	150		130		2			3,0 t	45
H19	0,2	0,5	160		140		1				48
	0,5	1,5	160		140		1				48
	1,5	3,0	160		140		1				48
H22	0,2	0,5	95	135	65		4		0,5 t	0 t	30
	0,5	1,5	95	135	65		5		0,5 t	0 t	30
	1,5	3,0	95	135	65		6		0,5 t	0,5 t	30
	3,0	6,0	95	135	65		10		1,0 t	1,0 t	30
	6,0	12,5	95	135	65		10			2,0 t	30
H24	0,2	0,5	115	155	90		3		1,0 t	0 t	37
	0,5	1,5	115	155	90		4		1,0 t	0,5 t	37
	1,5	3,0	115	155	90		5		1,0 t	1,0 t	37
	3,0	6,0	115	155	90		7			1,5 t	37
	6,0	12,5	115	155	85		9			2,5 t	36
H26	0,2	0,5	130	170	105		2			0,5 t	41
	0,5	1,5	130	170	105		3			1,0 t	41
	1,5	4,0	130	170	105		4			1,5 t	41

[a] For information only.

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

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	2,5	150,0	60								
O	0,2	0,5	65	95	20		20		0 t	0 t	20
	0,5	1,5	65	95	20		22		0 t	0 t	20
	1,5	3,0	65	95	20		26		0 t	0 t	20
	3,0	6,0	65	95	20		29		0,5 t	0,5 t	20
	6,0	12,5	65	95	20		35		1,0 t	1,0 t	20
	12,5	80,0	65	95	20			32			20
H111	0,2	0,5	65	95	20		20		0 t	0 t	20
	0,5	1,5	65	95	20		22		0 t	0 t	20
	1,5	3,0	65	95	20		26		0 t	0 t	20
	3,0	6,0	65	95	20		29		0,5 t	0,5 t	20
	6,0	12,5	65	95	20		35		1,0 t	1,0 t	20
	12,5	80,0	65	95	20			32			20
H112	0,2	0,5	75		30		20				23
	0,5	1,5	75		30		20				23
	1,5	3,0	75		30		20				23
	3,0	6,0	75		30		20				23
	6,0	12,5	75		30		20				23
	12,5	80,0	75		30			20			23
H12	0,2	0,5	85	125	65		2		0,5 t	0 t	28
	0,5	1,5	85	125	65		4		0,5 t	0 t	28
	1,5	3,0	85	125	65		5		0,5 t	0,5 t	28
	3,0	6,0	85	125	65		7		1,0 t	1,0 t	28
	6,0	12,5	85	125	65		9			2,0 t	28
	12,5	40,0	85	125	65			9			28
H14	0,2	0,5	105	145	85		2		1,0 t	0 t	34
	0,5	1,5	105	145	85		2		1,0 t	0,5 t	34
	1,5	3,0	105	145	85		4		1,0 t	1,0 t	34
	3,0	6,0	105	145	85		5			1,5 t	34

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
	6,0	12,5	105	145	85		6			2,5 t	34
	12,5	25,0	105	145	85			6			34
H16	0,2	0,5	120	160	100		1			0,5 t	39
	0,5	1,5	120	160	100		2			1,0 t	39
	1,5	4,0	120	160	100		3			1,5 t	39
H18	0,2	0,5	140		120		1			1,0 t	42
	0,5	1,5	140		120		2			2,0 t	42
	1,5	3,0	140		120		2			3,0 t	42
H19	0,2	0,5	150		130		1				45
	0,5	1,5	150		130		1				45
	1,5	3,0	150		130		1				45
H22	0,2	0,5	85	125	55		4		0,5 t	0 t	27
	0,5	1,5	85	125	55		5		0,5 t	0 t	27
	1,5	3,0	85	125	55		6		0,5 t	0,5 t	27
	3,0	6,0	85	125	55		11		1,0 t	1,0 t	27
	6,0	12,5	85	125	55		12			2,0 t	27
H24	0,2	0,5	105	145	75		3		1,0 t	0 t	33
	0,5	1,5	105	145	75		4		1,0 t	0,5 t	33
	1,5	3,0	105	145	75		5		1,0 t	1,0 t	33
	3,0	6,0	105	145	75		8		1,5 t	1,5 t	33
	6,0	12,5	105	145	75		8			2,5 t	33
H26	0,2	0,5	120	160	90		2			0,5 t	38
	0,5	1,5	120	160	90		3			1,0 t	38
	1,5	4,0	120	160	90		4			1,5 t	38
H28	0,2	0,5	140		110		2			1,0 t	41
	0,5	1,5	140		110		2			2,0 t	41
	1,5	3,0	140		110		3			3,0 t	41

[a] For information only.

Table 6 — Alloy EN AW-2014 [Al Cu4SiMg]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
O	≥ 0,4	1,5		220		140	12		0,5 t	0 t	55
	1,5	3,0		220		140	13		1,0 t	1,0 t	55
	3,0	6,0		220		140	16			1,5 t	55
	6,0	9,0		220		140	16			2,5 t	55
	9,0	12,5		220		140	16			4,0 t	55
	12,5	25,0		220				10			55
T3	≥ 0,4	1,5	395		245		14				111
	1,5	6,0	400		245		14				112
T4	≥ 0,4	1,5	395		240		14		3,0 t [b]	3,0 t [b]	110
	1,5	6,0	395		240		14		5,0 t [b]	5,0 t [b]	110
	6,0	12,5	400		250		14			8,0 t [b]	112
	12,5	40,0	400		250			10			112
	40,0	100,0	395		250			7			111
T451	≥ 0,4	1,5	395		240		14		3,0 t [b]	3,0 t [b]	110
	1,5	6,0	395		240		14		5,0 t [b]	5,0 t [b]	110
	6,0	12,5	400		250		14			8,0 t [b]	112
	12,5	40,0	400		250			10			112
	40,0	100,0	395		250			7			111
T42	≥ 0,4	6,0	395		230		14				110
	6,0	12,5	400		235		14				111
	12,5	25,0	400		235			12			111
T6	≥ 0,4	1,5	440		390		6			5,0 t [b]	133
	1,5	6,0	440		390		7			7,0 t [b]	133
	6,0	12,5	450		395		7			10 t [b]	135
	12,5	40,0	460		400			6			138
	40,0	60,0	450		390			5			135
	60,0	80,0	435		380			4			131
	80,0	100,0	420		360			4			126

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
	100,0	125,0	410		350			4			123
	125,0	160,0	390		340			2			
T651	≥ 0,4	1,5	440		390		6			5,0 t [b]	133
	1,5	6,0	440		390		7			7,0 t [b]	133
	6,0	12,5	450		395		7			10 t [b]	135
	12,5	40,0	460		400			6			138
	40,0	60,0	450		390			5			135
	60,0	80,0	435		380			4			131
	80,0	100,0	420		360			4			126
	100,0	125,0	410		350			4			123
	125,0	160,0	390		340			2			
T62	≥ 0,4	12,5	440		390		7				133
	12,5	25,0	450		395			6			135

Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.

a For information only.

b Appreciably smaller cold bend radii can be achieved immediately after quenching.

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

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
O	≥ 0,2	0,5		235		110				1,0 t	55
	0,5	1,5		235		110	14			2,0 t	55
	1,5	3,0		235		110	16			2,0 t	55
	3,0	6,0		235		110	16			2,0 t	55
T4	≥ 0,2	0,5	400		225					3,0 t [b]	110
	0,5	1,5	400		225		13			3,0 t [b]	110
	1,5	6,0	400		225		14			5,0 t [b]	110
	6,0	12,5	400		250		14				
	12,5	25,0	400		250			12			
	25,0	40,0	400		250			10			
	40,0	80,0	395		250			7			
T451	≥ 0,2	0,5	400		225					3,0 t [b]	110
	0,5	1,5	400		225		13			3,0 t [b]	110
	1,5	6,0	400		225		14			5,0 t [b]	110
	6,0	12,5	400		250		14				
	12,5	25,0	400		250			12			
	25,0	40,0	400		250			10			
	40,0	80,0	395		250			7			
T6	≥ 0,2	0,5	440		380					5,0 t [b]	150
	0,5	1,5	440		380		6			5,0 t [b]	150
	1,5	3,0	440		380		7			6,0 t [b]	150
	3,0	6,0	440		380		8			6,0 t [b]	150
	6,0	12,5	460		410		8				
	12,5	25,0	460		410			6			
	25,0	40,0	450		400			5			
	40,0	60,0	430		390			5			
	60,0	90,0	430		390			4			
	90,0	115,0	420		370			4			
	115,0	140,0	410		350			4			

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
T651	≥ 0,2	0,5	440		380					5,0 t [b]	150
	0,5	1,5	440		380		6			5,0 t [b]	150
	1,5	3,0	440		380		7			6,0 t [b]	150
	3,0	6,0	440		380		8			6,0 t [b]	150
	6,0	12,5	460		410		8				
	12,5	25,0	460		410			6			
	25,0	40,0	450		400			5			
	40,0	60,0	430		390			5			
	60,0	90,0	430		390			4			
	90,0	115,0	420		370			4			
	115,0	140,0	410		350			4			

Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.

a For information only.

b Appreciably smaller cold bend radii can be achieved immediately after quenching.

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

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	≥ 0,4	1,5		225		145	12		0,5 t	0 t	55
	1,5	3,0		225		145	14		1,0 t	1,0 t	55
	3,0	6,0		225		145	13			1,5 t	55
	6,0	9,0		225		145	13			2,5 t	55
	9,0	12,5		225		145	13			4,0 t	55
	12,5	25,0		225		145		12			55
T4	≥ 0,4	1,5	390		245		14		3,0 t [b]	3,0 t [b]	110
	1,5	6,0	390		245		15		5,0 t [b]	5,0 t [b]	110
	6,0	12,5	390		260		13			8,0 t [b]	111
	12,5	40,0	390		250			12			110
	40,0	60,0	385		245			12			108
	60,0	80,0	370		240			7			
	80,0	120,0	360		240			6			105
	120,0	150,0	350		240			4			101
	150,0	180,0	330		220			2			
	180,0	200,0	300		200			2			
T451	≥ 0,4	1,5	390		245		14		3,0 t [b]	3,0 t [b]	110
	1,5	6,0	390		245		15		5,0 t [b]	5,0 t [b]	110
	6,0	12,5	390		260		13			8,0 t [b]	111
	12,5	40,0	390		250			12			110
	40,0	60,0	385		245			12			108
	60,0	80,0	370		240			7			
	80,0	120,0	360		240			6			105
	120,0	150,0	350		240			4			101
	150,0	180,0	330		220			2			
	180,0	200,0	300		200			2			
T452	150,0	180,0	330		220			2			
	180,0	200,0	300		200			2			

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T42	≥ 0,4	3,0	390		235		14				109
	3,0	12,5	390		235		15				109
	12,5	25,0	390		235			12			109
Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.											
a For information only. b Appreciably smaller cold bend radii can be achieved immediately after quenching.											

Table 9 — Alloy EN AW-2024 [Al Cu4Mg1]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
O	≥ 0,4	1,5		220		140	12		0,5 t	0 t	55
	1,5	3,0		220		140	13		2,0 t	1,0 t	55
	3,0	6,0		220		140	13		3,0 t	1,5 t	55
	6,0	9,0		220		140	13			2,5 t	55
	9,0	12,5		220		140	13			4,0 t	55
	12,5	25,0		220				11			55
T4	≥ 0,4	1,5	425		275		12		4,0 t		120
	1,5	6,0	425		275		14		5,0 t		120
T3	≥ 0,4	1,5	435		290		12		4,0 t [b]	4,0 t [b]	123
	1,5	3,0	435		290		14		4,0 t [b]	4,0 t [b]	123
	3,0	6,0	440		290		14		5,0 t [b]	5,0 t [b]	124
	6,0	12,5	440		290		13			8,0 t [b]	124
	12,5	40,0	430		290			11			122
	40,0	80,0	420		290			8			120
	80,0	100,0	400		285			7			115
	100,0	120,0	380		270			5			110
	120,0	150,0	360		250			5			104
T351	≥ 0,4	1,5	435		290		12		4,0 t [b]	4,0 t [b]	123
	1,5	3,0	435		290		14		4,0 t [b]	4,0 t [b]	123
	3,0	6,0	440		290		14		5,0 t [b]	5,0 t [b]	124
	6,0	12,5	440		290		13			8,0 t [b]	124
	12,5	40,0	430		290			11			122
	40,0	80,0	420		290			8			120
	80,0	100,0	400		285			7			115
	100,0	120,0	380		270			5			110
	120,0	150,0	360		250			5			104
T42	≥ 0,4	6,0	425		260		15				119
	6,0	12,5	425		260		12				119
	12,5	25,0	420		260			8			118

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
T8	≥ 0,4	1,5	460		400		5				138
	1,5	6,0	460		400		6				138
	6,0	12,5	460		400		5				138
	12,5	25,0	455		400			4			137
	25,0	40,0	455		395			4			136
T851	≥ 0,4	1,5	460		400		5				138
	1,5	6,0	460		400		6				138
	6,0	12,5	460		400		5				138
	12,5	25,0	455		400			4			137
	25,0	40,0	455		395			4			136
T62	≥ 0,4	12,5	440		345		5				129
	12,5	25,0	435		345			4			128
Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.											
a For information only. b Appreciably smaller cold bend radii can be achieved immediately after quenching.											

Table 10 — Alloy EN AW-2618A [Al Cu2Mg1,5Ni]

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
T851	≥ 6,0	12,5	420		375		5				
	12,5	40,0	420		375			5			
	40,0	80,0	410		370			5			
	80,0	100,0	405		365			4			
	100,0	140,0	395		360			4			
a No data available.											

Table 11 — Alloy EN AW-3003 [Al Mn1Cu]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	95								
O	0,2	0,5	95	135	35		15		0 t	0 t	28
	0,5	1,5	95	135	35		17		0 t	0 t	28
	1,5	3,0	95	135	35		20		0 t	0 t	28
	3,0	6,0	95	135	35		23		1,0 t	1,0 t	28
	6,0	12,5	95	135	35		24			1,5 t	28
	12,5	50,0	95	135	35			23			28
H111	0,2	0,5	95	135	35		15		0 t	0 t	28
	0,5	1,5	95	135	35		17		0 t	0 t	28
	1,5	3,0	95	135	35		20		0 t	0 t	28
	3,0	6,0	95	135	35		23		1,0 t	1,0 t	28
	6,0	12,5	95	135	35		24			1,5 t	28
	12,5	50,0	95	135	35			23			28
H112	≥ 6,0	12,5	115		70		10				35
	12,5	80,0	100		40			18			29
H12	0,2	0,5	120	160	90		3		1,5 t	0 t	38
	0,5	1,5	120	160	90		4		1,5 t	0,5 t	38
	1,5	3,0	120	160	90		5		1,5 t	1,0 t	38
	3,0	6,0	120	160	90		6			1,0 t	38
	6,0	12,5	120	160	90		7			2,0 t	38
	12,5	40,0	120	160	90			8			38
H14	0,2	0,5	145	185	125		2		2,0 t	0,5 t	46
	0,5	1,5	145	185	125		2		2,0 t	1,0 t	46
	1,5	3,0	145	185	125		3		2,0 t	1,0 t	46
	3,0	6,0	145	185	125		4			2,0 t	46
	6,0	12,5	145	185	125		5			2,5 t	46
	12,5	25,0	145	185	125			5			46
H16	0,2	0,5	170	210	150		1		2,5 t	1,0 t	54
	0,5	1,5	170	210	150		2		2,5 t	1,5 t	54
	1,5	4,0	170	210	150		2		2,5 t	2,0 t	54

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H18	0,2	0,5	190		170		1			1,5 t	60
	0,5	1,5	190		170		2			2,5 t	60
	1,5	3,0	190		170		2			3,0 t	60
H19	0,2	0,5	210		180		1				65
	0,5	1,5	210		180		2				65
	1,5	3,0	210		180		2				65
H22	0,2	0,5	120	160	80		6		1,0 t	0 t	37
	0,5	1,5	120	160	80		7		1,0 t	0,5 t	37
	1,5	3,0	120	160	80		8		1,0 t	1,0 t	37
	3,0	6,0	120	160	80		9			1,0 t	37
	6,0	12,5	120	160	80		11			2,0 t	37
H24	0,2	0,5	145	185	115		4		1,5 t	0,5 t	45
	0,5	1,5	145	185	115		4		1,5 t	1,0 t	45
	1,5	3,0	145	185	115		5		1,5 t	1,0 t	45
	3,0	6,0	145	185	115		6			2,0 t	45
	6,0	12,5	145	185	110		8			2,5 t	45
H26	0,2	0,5	170	210	140		2		2,0 t	1,0 t	53
	0,5	1,5	170	210	140		3		2,0 t	1,5 t	53
	1,5	4,0	170	210	140		3		2,0 t	2,0 t	53
H28	0,2	0,5	190		160		2			1,5 t	59
	0,5	1,5	190		160		2			2,5 t	59
	1,5	3,0	190		160		3			3,0 t	59

[a] For information only.

Table 12 — Alloy EN AW-3004 [Al Mn1Mg1]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	155								
O	0,2	0,5	155	200	60		13		0 t	0 t	45
	0,5	1,5	155	200	60		14		0 t	0 t	45
	1,5	3,0	155	200	60		15		0,5 t	0 t	45
	3,0	6,0	155	200	60		16		1,0 t	1,0 t	45
	6,0	12,5	155	200	60		16			2,0 t	45
	12,5	50,0	155	200	60			14			45
H111	0,2	0,5	155	200	60		13		0 t	0 t	45
	0,5	1,5	155	200	60		14		0 t	0 t	45
	1,5	3,0	155	200	60		15		0,5 t	0 t	45
	3,0	6,0	155	200	60		16		1,0 t	1,0 t	45
	6,0	12,5	155	200	60		16			2,0 t	45
	12,5	50,0	155	200	60			14			45
H12	0,2	0,5	190	240	155		2		1,5 t	0 t	59
	0,5	1,5	190	240	155		3		1,5 t	0,5 t	59
	1,5	3,0	190	240	155		4		2,0 t	1,0 t	59
	3,0	6,0	190	240	155		5			1,5 t	59
H14	0,2	0,5	220	265	180		1		2,5 t	0,5 t	67
	0,5	1,5	220	265	180		2		2,5 t	1,0 t	67
	1,5	3,0	220	265	180		2		2,5 t	1,5 t	67
	3,0	6,0	220	265	180		3			2,0 t	67
H16	0,2	0,5	240	285	200		1		3,5 t	1,0 t	73
	0,5	1,5	240	285	200		1		3,5 t	1,5 t	73
	1,5	4,0	240	285	200		2			2,5 t	73
H18	0,2	0,5	260		230		1			1,5 t	80
	0,5	1,5	260		230		1			2,5 t	80
	1,5	3,0	260		230		2				80
H19	0,2	0,5	270		240		1				83
	0,5	1,5	270		240		1				83

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H22	0,2	0,5	190	240	145		4		1,0 t	0 t	58
	0,5	1,5	190	240	145		5		1,0 t	0,5 t	58
	1,5	3,0	190	240	145		6		1,5 t	1,0 t	58
	3,0	6,0	190	240	145		7			1,5 t	58
H32	0,2	0,5	190	240	145		4		1,0 t	0 t	58
	0,5	1,5	190	240	145		5		1,0 t	0,5 t	58
	1,5	3,0	190	240	145		6		1,5 t	1,0 t	58
	3,0	6,0	190	240	145		7			1,5 t	58
H24	0,2	0,5	220	265	170		3		2,0 t	0,5 t	66
	0,5	1,5	220	265	170		4		2,0 t	1,0 t	66
	1,5	3,0	220	265	170		4		2,0 t	1,5 t	66
H34	0,2	0,5	220	265	170		3		2,0 t	0,5 t	66
	0,5	1,5	220	265	170		4		2,0 t	1,0 t	66
	1,5	3,0	220	265	170		4		2,0 t	1,5 t	66
H26	0,2	0,5	240	285	190		3		3,0 t	1,0 t	72
	0,5	1,5	240	285	190		3		3,0 t	1,5 t	72
	1,5	3,0	240	285	190		3			2,5 t	72
H36	0,2	0,5	240	285	190		3		3,0 t	1,0 t	72
	0,5	1,5	240	285	190		3		3,0 t	1,5 t	72
	1,5	3,0	240	285	190		3			2,5 t	72
H28	0,2	0,5	260		220		2			1,5 t	79
	0,5	1,5	260		220		3			2,5 t	79
H38	0,2	0,5	260		220		2			1,5 t	79
	0,5	1,5	260		220		3			2,5 t	79

[a] For information only.

Table 13 — Alloy EN AW-3005 [Al Mn1Mg0,5]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	115								
O	0,2	0,5	115	165	45		12		0 t	0 t	33
	0,5	1,5	115	165	45		14		0 t	0 t	33
	1,5	3,0	115	165	45		16		1,0 t	0,5 t	33
	3,0	6,0	115	165	45		19			1,0 t	33
H111	0,2	0,5	115	165	45		12		0 t	0 t	33
	0,5	1,5	115	165	45		14		0 t	0 t	33
	1,5	3,0	115	165	45		16		1,0 t	0,5 t	33
	3,0	6,0	115	165	45		19			1,0 t	33
H12	0,2	0,5	145	195	125		3		1,5 t	0 t	46
	0,5	1,5	145	195	125		4		1,5 t	0,5 t	46
	1,5	3,0	145	195	125		4		2,0 t	1,0 t	46
	3,0	6,0	145	195	125		5			1,5 t	46
H14	0,2	0,5	170	215	150		1		2,5 t	0,5 t	54
	0,5	1,5	170	215	150		2		2,5 t	1,0 t	54
	1,5	3,0	170	215	150		2			1,5 t	54
	3,0	6,0	170	215	150		3			2,0 t	54
H16	0,2	0,5	195	240	175		1			1,0 t	61
	0,5	1,5	195	240	175		2			1,5 t	61
	1,5	4,0	195	240	175		2			2,5 t	61
H18	0,2	0,5	220		200		1			1,5 t	69
	0,5	1,5	220		200		2			2,5 t	69
	1,5	3,0	220		200		2				69
H19	0,2	0,5	235		210		1				73
	0,5	1,5	235		210		1				73
H22	0,2	0,5	145	195	110		5		1,0 t	0 t	45
	0,5	1,5	145	195	110		5		1,0 t	0,5 t	45
	1,5	3,0	145	195	110		6		1,5 t	1,0 t	45
	3,0	6,0	145	195	110		7			1,5 t	45

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H24	0,2	0,5	170	215	130		4		1,5 t	0,5 t	52
	0,5	1,5	170	215	130		4		1,5 t	1,0 t	52
	1,5	3,0	170	215	130		4			1,5 t	52
H26	0,2	0,5	195	240	160		3			1,0 t	60
	0,5	1,5	195	240	160		3			1,5 t	60
	1,5	3,0	195	240	160		3			2,5 t	60
H28	0,2	0,5	220		190		2			1,5 t	68
	0,5	1,5	220		190		2			2,5 t	68
	1,5	3,0	220		190		3				68

[a] For information only.

Table 14 — Alloy EN AW-3103 [Al Mn1]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	90								
O	0,2	0,5	90	130	35		17		0 t	0 t	27
	0,5	1,5	90	130	35		19		0 t	0 t	27
	1,5	3,0	90	130	35		21		0 t	0 t	27
	3,0	6,0	90	130	35		24		1,0 t	1,0 t	27
	6,0	12,5	90	130	35		28			1,5 t	27
	12,5	50,0	90	130	35			25			27
H111	0,2	0,5	90	130	35		17		0 t	0 t	27
	0,5	1,5	90	130	35		19		0 t	0 t	27
	1,5	3,0	90	130	35		21		0 t	0 t	27
	3,0	6,0	90	130	35		24		1,0 t	1,0 t	27
	6,0	12,5	90	130	35		28			1,5 t	27
	12,5	50,0	90	130	35			25			27
H112	≥ 6,0	12,5	110		70		10				34
	12,5	80,0	95		40			18			28
H12	0,2	0,5	115	155	85		3		1,5 t	0 t	36
	0,5	1,5	115	155	85		4		1,5 t	0,5 t	36
	1,5	3,0	115	155	85		5		1,5 t	1,0 t	36
	3,0	6,0	115	155	85		6			1,0 t	36
	6,0	12,5	115	155	85		7			2,0 t	36
	12,5	40,0	115	155	85			8			36
H14	0,2	0,5	140	180	120		2		2,0 t	0,5 t	45
	0,5	1,5	140	180	120		2		2,0 t	1,0 t	45
	1,5	3,0	140	180	120		3		2,0 t	1,0 t	45
	3,0	6,0	140	180	120		4			2,0 t	45
	6,0	12,5	140	180	120		5			2,5 t	45
	12,5	25,0	140	180	120			5			45

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H16	0,2	0,5	160	200	145		1		2,5 t	1,0 t	51
	0,5	1,5	160	200	145		2		2,5 t	1,5 t	51
	1,5	4,0	160	200	145		2		2,5 t	2,0 t	51
	4,0	8,0	160	200	145		2		2,0 t	1,5 t	51
H18	0,2	0,5	185		165		1			1,5 t	58
	0,5	1,5	185		165		2			2,5 t	58
	1,5	3,0	185		165		2			3,0 t	58
H19	0,2	0,5	200		175		1				62
	0,5	1,5	200		175		2				62
	1,5	3,0	200		175		2				62
H22	0,2	0,5	115	155	75		6		1,0 t	0 t	36
	0,5	1,5	115	155	75		7		1,0 t	0,5 t	36
	1,5	3,0	115	155	75		8		1,0 t	1,0 t	36
	3,0	6,0	115	155	75		9			1,0 t	36
	6,0	12,5	115	155	75		11			2,0 t	36
H24	0,2	0,5	140	180	110		4		1,5 t	0,5 t	44
	0,5	1,5	140	180	110		4		1,5 t	1,0 t	44
	1,5	3,0	140	180	110		5		1,5 t	1,0 t	44
	3,0	6,0	140	180	110		6			2,0 t	44
	6,0	12,5	140	180	110		8			2,5 t	44
H26	0,2	0,5	160	200	135		2		2,0 t	1,0 t	50
	0,5	1,5	160	200	135		3		2,0 t	1,5 t	50
	1,5	4,0	160	200	135		3		2,0 t	2,0 t	50
H28	0,2	0,5	185		155		2			1,5 t	58
	0,5	1,5	185		155		2			2,5 t	58
	1,5	3,0	185		155		3			3,0 t	58

[a] For information only.

Table 15 — Alloy EN AW-3105 [Al Mn0,5Mg0,5]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	100								
O	0,2	0,5	100	155	40		14		0 t		29
	0,5	1,5	100	155	40		15		0 t		29
	1,5	3,0	100	155	40		17		0,5 t		29
H111	0,2	0,5	100	155	40		14		0 t		29
	0,5	1,5	100	155	40		15		0 t		29
	1,5	3,0	100	155	40		17		0,5 t		29
H12	0,2	0,5	130	180	105		3		1,5 t		41
	0,5	1,5	130	180	105		4		1,5 t		41
	1,5	3,0	130	180	105		4		1,5 t		41
H14	0,2	0,5	150	200	130		2		2,5 t		48
	0,5	1,5	150	200	130		2		2,5 t		48
	1,5	3,0	150	200	130		2		2,5 t		48
H16	0,2	0,5	175	225	160		1				56
	0,5	1,5	175	225	160		2				56
	1,5	3,0	175	225	160		2				56
H18	0,2	0,5	195		180		1				62
	0,5	1,5	195		180		1				62
	1,5	3,0	195		180		1				62
H19	0,2	0,5	215		190		1				67
	0,5	1,5	215		190		1				67
H22	0,2	0,5	130	180	105		6				41
	0,5	1,5	130	180	105		6				41
	1,5	3,0	130	180	105		7				41
H24	0,2	0,5	150	200	120		4		2,5 t		47
	0,5	1,5	150	200	120		4		2,5 t		47
	1,5	3,0	150	200	120		5		2,5 t		47

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H26	0,2	0,5	175	225	150		3				55
	0,5	1,5	175	225	150		3				55
	1,5	3,0	175	225	150		3				55
H28	0,2	0,5	195		170		2				61
	0,5	1,5	195		170		2				61
a For information only.											

Table 16 — Alloy EN AW-4006 [Al Si1Fe]

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	6,0	95								
O	0,2	0,5	95	130	40		17		0 t		28
	0,5	1,5	95	130	40		19		0 t		28
	1,5	3,0	95	130	40		22		0 t		28
	3,0	6,0	95	130	40		25		1,0 t		28
H12	0,2	0,5	120	160	90		4		1,5 t		38
	0,5	1,5	120	160	90		4		1,5 t		38
	1,5	3,0	120	160	90		5		1,5 t		38
H14	0,2	0,5	140	180	120		3		2,0 t		45
	0,5	1,5	140	180	120		3		2,0 t		45
	1,5	3,0	140	180	120		3		2,0 t		45

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T4[b]	0,2	0,5	120	160	55		14				35
	0,5	1,5	120	160	55		16				35
	1,5	3,0	120	160	55		18				35
	3,0	6,0	120	160	55		21				35

a For information only.

b The T4 temper is not normally supplied by the producers of wrought products such as circles, strips and sheets. It is obtained by rapid cooling after heating at a relatively elevated temperature, above 500 °C. This thermal cycle is routinely achieved when enamelling the finished products made out of this alloy, such as frying pans, pressure cookers, pans, etc.

Table 17 — Alloy EN AW-4007 [Al Si1,5Mn]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[b]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[b]	≥ 2,5	6,0	110								
O	0,2	0,5	110	150	45		15				32
	0,5	1,5	110	150	45		16				32
	1,5	3,0	110	150	45		19				32
	3,0	6,0	110	150	45		21				32
	6,0	12,5	110	150	45		25				32
H111	0,2	0,5	110	150	45		15				32
	0,5	1,5	110	150	45		16				32
	1,5	3,0	110	150	45		19				32
	3,0	6,0	110	150	45		21				32
	6,0	12,5	110	150	45		25				32
H12	0,2	0,5	140	180	110		4				44
	0,5	1,5	140	180	110		4				44
	1,5	3,0	140	180	110		5				44

a No data available.

b For information only.

Table 18 — Alloy EN AW-4015 [Al Si2Mn]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness HBW[b]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	0,2	3,0		150	45		20				35
H111	0,2	3,0		150	45		20				35
H12	0,2	0,5	120	175	90		4				45
	0,5	3,0	120	175	90		4				45
H14	0,2	0,5	150	200	120		2				50
	0,5	3,0	150	200	120		3				50
H16	0,2	0,5	170	220	150		1				60
	0,5	3,0	170	220	150		2				60
H18	0,2	3,0	200	250	180		1				70

a No data available.

b For information only.

Table 19 — Alloy EN AW-4115 [Al Si2MnMgCu]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius a		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	0,2	3,0	100	145	35		10		0 t	0 t	30 – 45
H12	0,2	3,0	120	160	90		4		0 t	0 t	35 – 50
H14	0,2	3,0	150	190	120		2		1,0 t	0,5 t	45 – 60
H16	0,2	3,0	180	220	140		1		2,0 t	1,0 t	55 – 70
H18	0,2	3,0	200		170		1				65
H26	0,2	3,0	180	220	120		3				60 - 75

a For information only.

Table 20 — Alloy EN AW-5005 [Al Mg1(B)], alloy EN AW-5005A [Al Mg1(C)]

Temper	Specified thickness		Tensile strength		Yield strength		Elongation min.		Bend radius[a]		Hardness[a]
	mm		R_m MPa		$R_{p0,2}$ MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	100								
O	0,2	0,5	100	145	35		15		0 t	0 t	29
	0,5	1,5	100	145	35		19		0 t	0 t	29
	1,5	3,0	100	145	35		20		0,5 t	0 t	29
	3,0	6,0	100	145	35		22		1,0 t	1,0 t	29
	6,0	12,5	100	145	35		24			1,5 t	29
	12,5	50,0	100	145	35			20			29
H111	0,2	0,5	100	145	35		15		0 t	0 t	29
	0,5	1,5	100	145	35		19		0 t	0 t	29
	1,5	3,0	100	145	35		20		0,5 t	0 t	29
	3,0	6,0	100	145	35		22		1,0 t	1,0 t	29
	6,0	12,5	100	145	35		24			1,5 t	29
	12,5	50,0	100	145	35			20			29
H12	0,2	0,5	125	165	95		2		1,0 t	0 t	39
	0,5	1,5	125	165	95		2		1,0 t	0,5 t	39
	1,5	3,0	125	165	95		4		1,5 t	1,0 t	39
	3,0	6,0	125	165	95		5			1,0 t	39
	6,0	12,5	125	165	95		7			2,0 t	39
H14	0,2	0,5	145	185	120		2		2,0 t	0,5 t	48
	0,5	1,5	145	185	120		2		2,0 t	1,0 t	48
	1,5	3,0	145	185	120		3		2,5 t	1,0 t	48
	3,0	6,0	145	185	120		4			2,0 t	48
	6,0	12,5	145	185	120		5			2,5 t	48
H16	0,2	0,5	165	205	145		1			1,0 t	52
	0,5	1,5	165	205	145		2			1,5 t	52
	1,5	3,0	165	205	145		3			2,0 t	52
	3,0	4,0	165	205	145		3			2,5 t	52

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H18	0,2	0,5	185		165		1			1,5 t	58
	0,5	1,5	185		165		2			2,5 t	58
	1,5	3,0	185		165		2			3,0 t	58
H19	0,2	0,5	205		185		1				64
	0,5	1,5	205		185		2				64
	1,5	3,0	205		185		2				64
H22	0,2	0,5	125	165	80		4		1,0 t	0 t	38
	0,5	1,5	125	165	80		5		1,0 t	0,5 t	38
	1,5	3,0	125	165	80		6		1,5 t	1,0 t	38
	3,0	6,0	125	165	80		8			1,0 t	38
	6,0	12,5	125	165	80		10			2,0 t	38
H32	0,2	0,5	125	165	80		4		1,0 t	0 t	38
	0,5	1,5	125	165	80		5		1,0 t	0,5 t	38
	1,5	3,0	125	165	80		6		1,5 t	1,0 t	38
	3,0	6,0	125	165	80		8			1,0 t	38
	6,0	12,5	125	165	80		10			2,0 t	38
H24	0,2	0,5	145	185	110		3		1,5 t	0,5 t	47
	0,5	1,5	145	185	110		4		1,5 t	1,0 t	47
	1,5	3,0	145	185	110		5		2,0 t	1,0 t	47
	3,0	6,0	145	185	110		6			2,0 t	47
	6,0	12,5	145	185	110		8			2,5 t	47
H34	0,2	0,5	145	185	110		3		1,5 t	0,5 t	47
	0,5	1,5	145	185	110		4		1,5 t	1,0 t	47
	1,5	3,0	145	185	110		5		2,0 t	1,0 t	47
	3,0	6,0	145	185	110		6			2,0 t	47
	6,0	12,5	145	185	110		8			2,5 t	47

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H26	0,2	0,5	165	205	135		2			1,0 t	52
	0,5	1,5	165	205	135		3			1,5 t	52
	1,5	3,0	165	205	135		4			2,0 t	52
	3,0	4,0	165	205	135		4			2,5 t	52
H36	0,2	0,5	165	205	135		2			1,0 t	52
	0,5	1,5	165	205	135		3			1,5 t	52
	1,5	3,0	165	205	135		4			2,0 t	52
	3,0	4,0	165	205	135		4			2,5 t	52
H28	0,2	0,5	185		160		1			1,5 t	58
	0,5	1,5	185		160		2			2,5 t	58
	1,5	3,0	185		160		3			3,0 t	58
H38	0,2	0,5	185		160		1			1,5 t	58
	0,5	1,5	185		160		2			2,5 t	58
	1,5	3,0	185		160		3			3,0 t	58

[a] For information only.

Table 21 — Alloy EN AW-5010 [AlMg 0,5Mn]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\ mm}$	A	180°	90°	
F[a]	≥ 2,5	80,0	90								
O	0,2	0,5	90	130	35		17		0 t	0 t	27
	0,5	1,5	90	130	35		19		0 t	0 t	27
	1,5	3,0	90	130	35		21		0 t	0 t	27
	3,0	6,0	90	130	35		24		1,0 t	1,0 t	27
H111	0,2	0,5	90	130	35		17		0 t	0 t	27
	0,5	1,5	90	130	35		19		0 t	0 t	27
	1,5	3,0	90	130	35		21		0 t	0 t	27
	3,0	6,0	90	130	35		24		1,0 t	1,0 t	27
H12	0,2	0,5	110	155	85		2		1,5 t	0 t	36
	0,5	1,5	110	155	85		3		1,5 t	0,5 t	36
	1,5	3,0	110	155	85		4		2,0 t	1,0 t	36
	3,0	6,0	110	155	85		5			1,5 t	36
H14	0,2	0,5	140	175	115		2		2,0 t	0,5 t	45
	0,5	1,5	140	175	115		2		2,0 t	1,0 t	45
	1,5	3,0	140	175	115		3		2,5 t	1,5 t	45
	3,0	6,0	140	175	115		4			2,0 t	45
H16	0,2	0,5	155	195	140		1		2,5 t	1,0 t	51
	0,5	1,5	155	195	140		2		2,5 t	1,5 t	51
	1,5	4,0	155	195	140		2		2,5 t	2,0 t	51
H18	0,2	0,5	175		160		1			1,5 t	58
	0,5	1,5	175		160		2			2,5 t	58
	1,5	3,0	175		160		2			3,0 t	58
H19	0,2	0,5	190		170		1				62
	0,5	1,5	190		170		1				62
	1,5	3,0	190		170		1				62
H22	0,2	0,5	110	155	75		4		1,0 t	0 t	36
	0,5	1,5	110	155	75		5		1,0 t	0,5 t	36
	1,5	3,0	110	155	75		6		1,0 t	1,0 t	36
	3,0	6,0	110	155	75		7			1,5 t	36

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H24	0,2	0,5	135	175	105		3		1,5 t	0,5 t	44
	0,5	1,5	135	175	105		4		1,5 t	1,0 t	44
	1,5	3,0	135	175	105		5		2,0 t	1,5 t	44
H26	0,2	0,5	155	195	130		2		2,0 t	1,0 t	50
	0,5	1,5	155	195	130		3		2,0 t	1,5 t	50
	1,5	4,0	155	195	130		3		2,5 t	2,0 t	50
H28	0,2	0,5	175		150		1			2,0 t	58
	0,5	1,5	175		150		2			2,5 t	58
	1,5	3,0	175		150		3			3,0 t	58

[a] For information only.

Table 22 — Alloy EN AW-5026 [AI Mg4,5MnSiFe]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness HBW[a]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	≥ 4	10	245	300	120		12				
	10	50	245	300	120			11			
	50	100	245	300	120			10			
	100	200	230	285	120			9			
	200	350	210	270	90			6			
H111	≥ 4	10	245	300	120		12				
	10	50	245	300	120			11			
	50	100	245	300	120			10			
	100	200	230	285	120			9			
	200	350	210	270	90			6			
H14	≥ 5	12,5	250	300	200		10				
	12,5	15	250	300	200			10			
H24	≥ 3	12,5	300	340	220		5				
	12,5	20	300	340	220			4			
H34	≥ 5	12,5	250	300	200		10				
	12,5	15	250	300	200			10			

[a] No data available.

Table 23 — Alloy EN AW-5040 [Al Mg1,5Mn]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness HBW[b]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H24	≥ 0,8	1,8	220	260	170		6				66
H34	≥ 0,8	1,8	220	260	170		6				66
H26	≥ 1,0	2,0	240	280	205		5				74
H36	≥ 1,0	2,0	240	280	205		5				74

a No data available.

b For information only.

Table 24 — Alloy EN AW-5042 [AlMg 3,5 Mn]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[b]		Hardness HBW[a]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	1,0	3,0	240	350	115		18		1,5 t		
	3,0	6,0	240	350	115			18	2,0 t		
H 111	1,0	3,0	240	350	115		18		1,5 t		
	3,0	6,0	240	350	115			18	2,0 t		
H24	0,25	0,50	280	320	230	280	6				
H18	0,25	0,50	330	380	300	350	3				
H19	0,25	0,33	350	390	320	370	4				
	0,34	0,50	340	380	310	360	4				

a No data available.

b For information only.

Table 25 — Alloy EN AW-5049 [Al Mg2Mn0,8]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness HBW[a]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	100,0	190								
O	0,2	0,5	190	240	80		12		0,5 t	0 t	52
	0,5	1,5	190	240	80		14		0,5 t	0,5 t	52
	1,5	3,0	190	240	80		16		1,0 t	1,0 t	52
	3,0	6,0	190	240	80		18		1,0 t	1,0 t	52
	6,0	12,5	190	240	80		18			2,0 t	52
	12,5	100,0	190	240	80			17			52
H111	0,2	0,5	190	240	80		12		0,5 t	0 t	52
	0,5	1,5	190	240	80		14		0,5 t	0,5 t	52
	1,5	3,0	190	240	80		16		1,0 t	1,0 t	52
	3,0	6,0	190	240	80		18		1,0 t	1,0 t	52
	6,0	12,5	190	240	80		18			2,0 t	52
	12,5	100,0	190	240	80			17			52
H112	≥ 6,0	12,5	210		100		12				62
	12,5	25,0	200		90			10			58
	25,0	40,0	190		80			12			52
	40,0	80,0	190		80			14			52
H12	0,2	0,5	220	270	170		4				66
	0,5	1,5	220	270	170		5				66
	1,5	3,0	220	270	170		6				66
	3,0	6,0	220	270	170		7				66
	6,0	12,5	220	270	170		9				66
	12,5	40,0	220	270	170			9			66
H14	0,2	0,5	240	280	190		3				72
	0,5	1,5	240	280	190		3				72
	1,5	3,0	240	280	190		4				72
	3,0	6,0	240	280	190		4				72
	6,0	12,5	240	280	190		5				72
	12,5	25,0	240	280	190			5			72

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness** HBW[a]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H16	0,2	0,5	265	305	220		2				80
	0,5	1,5	265	305	220		3				80
	1,5	3,0	265	305	220		3				80
	3,0	6,0	265	305	220		3				80
H18	0,2	0,5	290		250		1				88
	0,5	1,5	290		250		2				88
	1,5	3,0	290		250		2				88
H22	0,2	0,5	220	270	130		7		1,5 t	0,5 t	63
	0,5	1,5	220	270	130		8		1,5 t	1,0 t	63
	1,5	3,0	220	270	130		10		2,0 t	1,5 t	63
	3,0	6,0	220	270	130		11			1,5 t	63
	6,0	12,5	220	270	130		10			2,5 t	63
	12,5	40,0	220	270	130			9			63
H32	0,2	0,5	220	270	130		7		1,5 t	0,5 t	63
	0,5	1,5	220	270	130		8		1,5 t	1,0 t	63
	1,5	3,0	220	270	130		10		2,0 t	1,5 t	63
	3,0	6,0	220	270	130		11			1,5 t	63
	6,0	12,5	220	270	130		10			2,5 t	63
	12,5	40,0	220	270	130			9			63
H24	0,2	0,5	240	280	160		6		2,5 t	1,0 t	70
	0,5	1,5	240	280	160		6		2,5 t	1,5 t	70
	1,5	3,0	240	280	160		7		2,5 t	2,0 t	70
	3,0	6,0	240	280	160		8			2,5 t	70
	6,0	12,5	240	280	160		10			3,0 t	70
	12,5	25,0	240	280	160			8			70
H34	0,2	0,5	240	280	160		6		2,5 t	1,0 t	70
	0,5	1,5	240	280	160		6		2,5 t	1,5 t	70
	1,5	3,0	240	280	160		7		2,5 t	2,0 t	70
	3,0	6,0	240	280	160		8			2,5 t	70
	6,0	12,5	240	280	160		10			3,0 t	70
	12,5	25,0	240	280	160			8			70

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness** HBW[a]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H26	0,2	0,5	265	305	190		4			1,5 t	78
	0,5	1,5	265	305	190		4			2,0 t	78
	1,5	3,0	265	305	190		5			3,0 t	78
	3,0	6,0	265	305	190		6			3,5 t	78
H36	0,2	0,5	265	305	190		4			1,5 t	78
	0,5	1,5	265	305	190		4			2,0 t	78
	1,5	3,0	265	305	190		5			3,0 t	78
	3,0	6,0	265	305	190		6			3,5 t	78
H28	0,2	0,5	290		230		3				87
	0,5	1,5	290		230		3				87
	1,5	3,0	290		230		4				87
H38	0,2	0,5	290		230		3				87
	0,5	1,5	290		230		3				87
	1,5	3,0	290		230		4				87

[a] For information only.

Table 26 — Alloy EN AW-5050 [Al Mg1,5(C)]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	130								
O	0,2	0,5	130	170	45		16		0 t	0 t	36
	0,5	1,5	130	170	45		17		0 t	0 t	36
	1,5	3,0	130	170	45		19		0,5 t	0 t	36
	3,0	6,0	130	170	45		21			1,0 t	36
	6,0	12,5	130	170	45		20			2,0 t	36
	12,5	50,0	130	170	45			20			36
H111	0,2	0,5	130	170	45		16		0 t	0 t	36
	0,5	1,5	130	170	45		17		0 t	0 t	36
	1,5	3,0	130	170	45		19		0,5 t	0 t	36
	3,0	6,0	130	170	45		21			1,0 t	36
	6,0	12,5	130	170	45		20			2,0 t	36
	12,5	50,0	130	170	45			20			36
H112	≥ 6,0	12,5	140		55		12				39
	12,5	40,0	140		55			10			39
	40,0	80,0	140		55			10			39
H12	0,2	0,5	155	195	130		2			0 t	49
	0,5	1,5	155	195	130		2			0,5 t	49
	1,5	3,0	155	195	130		4			1,0 t	49
H14	0,2	0,5	175	215	150		2			0,5 t	55
	0,5	1,5	175	215	150		2			1,0 t	55
	1,5	3,0	175	215	150		3			1,5 t	55
	3,0	6,0	175	215	150		4			2,0 t	55
H16	0,2	0,5	195	235	170		1			1,0 t	61
	0,5	1,5	195	235	170		2			1,5 t	61
	1,5	3,0	195	235	170		2			2,5 t	61
	3,0	4,0	195	235	170		3			3,0 t	61
H18	0,2	0,5	220		190		1			1,5 t	68
	0,5	1,5	220		190		2			2,5 t	68
	1,5	3,0	220		190		2				68

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H22	0,2	0,5	155	195	110		4		1,0 t	0 t	47
	0,5	1,5	155	195	110		5		1,0 t	0,5 t	47
	1,5	3,0	155	195	110		7		1,5 t	1,0 t	47
	3,0	6,0	155	195	110		10			1,5 t	47
H32	0,2	0,5	155	195	110		4		1,0 t	0 t	47
	0,5	1,5	155	195	110		5		1,0 t	0,5 t	47
	1,5	3,0	155	195	110		7		1,5 t	1,0 t	47
	3,0	6,0	155	195	110		10			1,5 t	47
H24	0,2	0,5	175	215	135		3		1,5 t	0,5 t	54
	0,5	1,5	175	215	135		4		1,5 t	1,0 t	54
	1,5	3,0	175	215	135		5		2,0 t	1,5 t	54
	3,0	6,0	175	215	135		8			2,0 t	54
H34	0,2	0,5	175	215	135		3		1,5 t	0,5 t	54
	0,5	1,5	175	215	135		4		1,5 t	1,0 t	54
	1,5	3,0	175	215	135		5		2,0 t	1,5 t	54
	3,0	6,0	175	215	135		8			2,0 t	54
H26	0,2	0,5	195	235	160		2			1,0 t	60
	0,5	1,5	195	235	160		3			1,5 t	60
	1,5	3,0	195	235	160		4			2,5 t	60
	3,0	4,0	195	235	160		6			3,0 t	60
H36	0,2	0,5	195	235	160		2			1,0 t	60
	0,5	1,5	195	235	160		3			1,5 t	60
	1,5	3,0	195	235	160		4			2,5 t	60
	3,0	4,0	195	235	160		6			3,0 t	60
H28	0,2	0,5	220		180		1			1,5 t	67
	0,5	1,5	220		180		2			2,5 t	67
	1,5	3,0	220		180		3				67
H38	0,2	0,5	220		180		1			1,5 t	67
	0,5	1,5	220		180		2			2,5 t	67
	1,5	3,0	220		180		3				67

[a] For information only.

Table 27 — Alloy EN AW-5052 [Al Mg2,5]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	165								
O	0,2	0,5	170	215	65		12		0 t	0 t	47
	0,5	1,5	170	215	65		14		0 t	0 t	47
	1,5	3,0	170	215	65		16		0,5 t	0,5 t	47
	3,0	6,0	170	215	65		18			1,0 t	47
	6,0	12,5	165	215	65		19			2,0 t	46
	12,5	80,0	165	215	65			18			46
H111	0,2	0,5	170	215	65		12		0 t	0 t	47
	0,5	1,5	170	215	65		14		0 t	0 t	47
	1,5	3,0	170	215	65		16		0,5 t	0,5 t	47
	3,0	6,0	170	215	65		18			1,0 t	47
	6,0	12,5	165	215	65		19			2,0 t	46
	12,5	80,0	165	215	65			18			46
H112	≥ 6,0	12,5	190		80		7				55
	12,5	40,0	170		70			10			47
	40,0	80,0	170		70			14			47
H12	0,2	0,5	210	260	160		4				63
	0,5	1,5	210	260	160		5				63
	1,5	3,0	210	260	160		6				63
	3,0	6,0	210	260	160		8				63
	6,0	12,5	210	260	160		10				63
	12,5	40,0	210	260	160			9			63
H14	0,2	0,5	230	280	180		3				69
	0,5	1,5	230	280	180		3				69
	1,5	3,0	230	280	180		4				69
	3,0	6,0	230	280	180		4				69
	6,0	12,5	230	280	180		5				69
	12,5	25,0	230	280	180			4			69

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H16	0,2	0,5	250	300	210		2				76
	0,5	1,5	250	300	210		3				76
	1,5	3,0	250	300	210		3				76
	3,0	6,0	250	300	210		3				76
H18	0,2	0,5	270		240		1				83
	0,5	1,5	270		240		2				83
	1,5	3,0	270		240		2				83
H22	0,2	0,5	210	260	130		5		1,5 t	0,5 t	61
	0,5	1,5	210	260	130		6		1,5 t	1,0 t	61
	1,5	3,0	210	260	130		7		1,5 t	1,5 t	61
	3,0	6,0	210	260	130		10			1,5 t	61
	6,0	12,5	210	260	130		12			2,5 t	61
	12,5	40,0	210	260	130			12			61
H32	0,2	0,5	210	260	130		5		1,5 t	0,5 t	61
	0,5	1,5	210	260	130		6		1,5 t	1,0 t	61
	1,5	3,0	210	260	130		7		1,5 t	1,5 t	61
	3,0	6,0	210	260	130		10			1,5 t	61
	6,0	12,5	210	260	130		12			2,5 t	61
	12,5	40,0	210	260	130			12			61
H24	0,2	0,5	230	280	150		4		2,0 t	0,5 t	67
	0,5	1,5	230	280	150		5		2,0 t	1,5 t	67
	1,5	3,0	230	280	150		6		2,0 t	2,0 t	67
	3,0	6,0	230	280	150		7			2,5 t	67
	6,0	12,5	230	280	150		9			3,0 t	67
	12,5	25,0	230	280	150			9			67
H34	0,2	0,5	230	280	150		4		2,0 t	0,5 t	67
	0,5	1,5	230	280	150		5		2,0 t	1,5 t	67
	1,5	3,0	230	280	150		6		2,0 t	2,0 t	67
	3,0	6,0	230	280	150		7			2,5 t	67
	6,0	12,5	230	280	150		9			3,0 t	67
	12,5	25,0	230	280	150			9			67

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H26	0,2	0,5	250	300	180		3			1,5 t	74
	0,5	1,5	250	300	180		4			2,0 t	74
	1,5	3,0	250	300	180		5			3,0 t	74
	3,0	6,0	250	300	180		6			3,5 t	74
H36	0,2	0,5	250	300	180		3			1,5 t	74
	0,5	1,5	250	300	180		4			2,0 t	74
	1,5	3,0	250	300	180		5			3,0 t	74
	3,0	6,0	250	300	180		6			3,5 t	74
H28	0,2	0,5	270		210		3				81
	0,5	1,5	270		210		3				81
	1,5	3,0	270		210		4				81
H38	0,2	0,5	270		210		3				81
	0,5	1,5	270		210		3				81
	1,5	3,0	270		210		4				81

[a] For information only.

Table 28 — Alloy EN AW-5059 [Al Mg5,5MnZnZr]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness HBW[b]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	≥ 3,0	6,0	330	380	160	--	24		1,5 t		
	6,0	12,5	330	380	160		24		4,0 t		
	12,5	40,0	330	380	160			24			
H111	≥ 3,0	6,0	330	380	160	--	24		1,5 t		
	6,0	12,5	330	380	160		24		4,0 t		
	12,5	40,0	330	380	160			24			
H112	≥ 3,0	6,0	330	380	160	—	20	—	2,0 t	—	—
	6,0	12,5	330	380	160	—	20	—	4,0 t	—	—
	12,5	40,0	330	380	160	—	—	20	—	—	—
H116[c]	≥ 3,0	6,0	370	440	270	--	10		3,0 t		
	6,0	12,5	370	440	270		10		6,0 t		
	12,5	20,0	370	440	270			10			
	20,0	40,0	360	440	260			10			
H321[c]	≥ 3,0	6,0	370	440	270	--	10		3,0 t		
	6,0	12,5	370	440	270		10		6,0 t		
	12,5	20,0	370	440	270			10			
	20,0	40,0	360	440	260			10			

a For information only.

b No data available.

c Material supplied in the H116 or H321 temper shall be capable of meeting the exfoliation and intergranular corrosion performance specified in EN 13195 using test methods detailed in ASTM G66 and ASTM G67.

Table 29 — Alloy EN AW-5070 [Al Mg4MnZn]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness HBW[b]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	0,5	6,0	270	350	125			18	1,0 t	1,0 t	
H111	0,5	6,0	270	350	125			18	1,0 t	1,0 t	

a For information only.

b No data available.

Table 30 — Alloy EN AW-5083 [Al Mg4,5Mn0,7]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	250,0	250								
	250,0	350,0	245								
O	0,2	0,5	275	350	125		11		1,0 t	0,5 t	75
	0,5	1,5	275	350	125		12		1,0 t	1,0 t	75
	1,5	3,0	275	350	125		13		1,5 t	1,0 t	75
	3,0	6,3	275	350	125		15			1,5 t	75
	6,3	12,5	270	345	115		16			2,5 t	75
	12,5	50,0	270	345	115			15			75
	50,0	80,0	270	345	115			14			73
	80,0	120,0	260		110			12			70
	120,0	200,0	255		105			12			69
	200,0	250,0	250		95			10			69
	250,0	300,0	245		90			9			69

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H111	0,2	0,5	275	350	125		11		1,0 t	0,5 t	75
	0,5	1,5	275	350	125		12		1,0 t	1,0 t	75
	1,5	3,0	275	350	125		13		1,5 t	1,0 t	75
	3,0	6,3	275	350	125		15			1,5 t	75
	6,3	12,5	270	345	115		16			2,5 t	75
	12,5	50,0	270	345	115			15			75
	50,0	80,0	270	345	115			14			73
	80,0	120,0	260		110			12			70
	120,0	200,0	255		105			12			69
	200,0	250,0	250		95			10			69
	250,0	300,0	245		90			9			69
H112	≥ 6,0	12,5	275		125		12				75
	12,5	40,0	275		125			10			75
	40,0	80,0	270		115			10			73
	80,0	120,0	260		110			10			73
H116[b]	≥ 1,5	3,0	305	385	215		8		3,0 t	2,0 t	89
	3,0	6,0	305	385	215		10			2,5 t	89
	6,0	12,5	305	385	215		12			4,0 t	89
	12,5	40,0	305	385	215			10			89
	40,0	80,0	285	385	200			10			83
H321[b]	≥ 1,5	3,0	305	385	215		8		3,0 t	2,0 t	89
	3,0	6,0	305	385	215		10			2,5 t	89
	6,0	12,5	305	385	215		12			4,0 t	89
	12,5	40,0	305	385	215			10			89
	40,0	80,0	285	385	200			10			83
H12	0,2	0,5	315	375	250		3				94
	0,5	1,5	315	375	250		4				94
	1,5	3,0	315	375	250		5				94
	3,0	6,0	315	375	250		6				94
	6,0	12,5	315	375	250		7				94
	12,5	40,0	315	375	250			6			94

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H14	0,2	0,5	340	400	280		2				102
	0,5	1,5	340	400	280		3				102
	1,5	3,0	340	400	280		3				102
	3,0	6,0	340	400	280		3				102
	6,0	12,5	340	400	280		4				102
	12,5	25,0	340	400	280			3			102
H16	0,2	0,5	360	420	300		1				108
	0,5	1,5	360	420	300		2				108
	1,5	3,0	360	420	300		2				108
	3,0	4,0	360	420	300		2				108
H22	0,2	0,5	305	380	215		5		2,0 t	0,5 t	89
	0,5	1,5	305	380	215		6		2,0 t	1,5 t	89
	1,5	3,0	305	380	215		7		3,0 t	2,0 t	89
	3,0	6,0	305	380	215		8			2,5 t	89
	6,0	12,5	305	380	215		10			3,5 t	89
	12,5	40,0	305	380	215			9			89
H32	0,2	0,5	305	380	215		5		2,0 t	0,5 t	89
	0,5	1,5	305	380	215		6		2,0 t	1,5 t	89
	1,5	3,0	305	380	215		7		3,0 t	2,0 t	89
	3,0	6,0	305	380	215		8			2,5 t	89
	6,0	12,5	305	380	215		10			3,5 t	89
	12,5	40,0	305	380	215			9			89
H24	0,2	0,5	340	400	250		4			1,0 t	99
	0,5	1,5	340	400	250		5			2,0 t	99
	1,5	3,0	340	400	250		6			2,5 t	99
	3,0	6,0	340	400	250		7			3,5 t	99
	6,0	12,5	340	400	250		8			4,5 t	99
	12,5	25,0	340	400	250			7			99

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H34	0,2	0,5	340	400	250		4			1,0 t	99
	0,5	1,5	340	400	250		5			2,0 t	99
	1,5	3,0	340	400	250		6			2,5 t	99
	3,0	6,0	340	400	250		7			3,5 t	99
	6,0	12,5	340	400	250		8			4,5 t	99
	12,5	25,0	340	400	250			7			99
H26	0,2	0,5	360	420	280		2				106
	0,5	1,5	360	420	280		3				106
	1,5	3,0	360	420	280		3				106
	3,0	4,0	360	420	280		3				106
H36	0,2	0,5	360	420	280		2				106
	0,5	1,5	360	420	280		3				106
	1,5	3,0	360	420	280		3				106
	3,0	4,0	360	420	280		3				106

a For information only.

b Material supplied in the H116 or H321 temper shall be capable of meeting the exfoliation and intergranular corrosion performance specified in EN 13195 using test methods detailed in ASTM G66 and ASTM G67.

Table 31 — Alloy EN AW-5086 [Al Mg4]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	150,0	240								
O	0,2	0,5	240	310	100		11		1,0 t	0,5 t	65
	0,5	1,5	240	310	100		12		1,0 t	1,0 t	65
	1,5	3,0	240	310	100		13		1,0 t	1,0 t	65
	3,0	6,0	240	310	100		15		1,5 t	1,5 t	65
	6,0	12,5	240	310	100		17			2,5 t	65
	12,5	150,0	240	310	100			16			65

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H111	0,2	0,5	240	310	100		11		1,0 t	0,5 t	65
	0,5	1,5	240	310	100		12		1,0 t	1,0 t	65
	1,5	3,0	240	310	100		13		1,0 t	1,0 t	65
	3,0	6,0	240	310	100		15		1,5 t	1,5 t	65
	6,0	12,5	240	310	100		17			2,5 t	65
	12,5	150,0	240	310	100			16			65
H112	≥ 6,0	12,5	250		105		8				69
	12,5	40,0	240		105			9			65
	40,0	80,0	240		100			12			65
H116[b]	≥ 1,5	3,0	275	360	195		8		2,0 t	2,0 t	81
	3,0	6,0	275	360	195		9			2,5 t	81
	6,0	12,5	275	360	195		10			3,5 t	81
	12,5	50,0	275	360	195			9			81
H321[b]	≥ 1,5	3,0	275	360	195		8		2,0 t	2,0 t	81
	3,0	6,0	275	360	195		9			2,5 t	81
	6,0	12,5	275	360	195		10			3,5 t	81
	12,5	50,0	275	360	195			9			81
H12	0,2	0,5	275	335	200		3				81
	0,5	1,5	275	335	200		4				81
	1,5	3,0	275	335	200		5				81
	3,0	6,0	275	335	200		6				81
	6,0	12,5	275	335	200		7				81
	12,5	40,0	275	335	200			6			81
H14	0,2	0,5	300	360	240		2				90
	0,5	1,5	300	360	240		3				90
	1,5	3,0	300	360	240		3				90
	3,0	6,0	300	360	240		3				90
	6,0	12,5	300	360	240		4				90
	12,5	25,0	300	360	240			3			90

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H16	0,2	0,5	325	385	270		1				98
	0,5	1,5	325	385	270		2				98
	1,5	3,0	325	385	270		2				98
	3,0	4,0	325	385	270		2				98
H18	0,2	0,5	345		290		1				104
	0,5	1,5	345		290		1				104
	1,5	3,0	345		290		1				104
H22	0,2	0,5	275	335	185		5		2,0 t	0,5 t	80
	0,5	1,5	275	335	185		6		2,0 t	1,5 t	80
	1,5	3,0	275	335	185		7		2,0 t	2,0 t	80
	3,0	6,0	275	335	185		8			2,5 t	80
	6,0	12,5	275	335	185		10			3,5 t	80
	12,5	40,0	275	335	185			9			80
H32	0,2	0,5	275	335	185		5		2,0 t	0,5 t	80
	0,5	1,5	275	335	185		6		2,0 t	1,5 t	80
	1,5	3,0	275	335	185		7		2,0 t	2,0 t	80
	3,0	6,0	275	335	185		8			2,5 t	80
	6,0	12,5	275	335	185		10			3,5 t	80
	12,5	40,0	275	335	185			9			80
H24	0,2	0,5	300	360	220		4		2,5 t	1,0 t	88
	0,5	1,5	300	360	220		5		2,5 t	2,0 t	88
	1,5	3,0	300	360	220		6		2,5 t	2,5 t	88
	3,0	6,0	300	360	220		7			3,5 t	88
	6,0	12,5	300	360	220		8			4,5 t	88
	12,5	25,0	300	360	220			7			88
H34	0,2	0,5	300	360	220		4		2,5 t	1,0 t	88
	0,5	1,5	300	360	220		5		2,5 t	2,0 t	88
	1,5	3,0	300	360	220		6		2,5 t	2,5 t	88
	3,0	6,0	300	360	220		7			3,5 t	88
	6,0	12,5	300	360	220		8			4,5 t	88
	12,5	25,0	300	360	220			7			88

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H26	0,2	0,5	325	385	250		2				96
	0,5	1,5	325	385	250		3				96
	1,5	3,0	325	385	250		3				96
	3,0	4,0	325	385	250		3				96
H36	0,2	0,5	325	385	250		2				96
	0,5	1,5	325	385	250		3				96
	1,5	3,0	325	385	250		3				96
	3,0	4,0	325	385	250		3				96

a For information only.

b Material supplied in the H116 or H321 temper shall be capable of meeting the exfoliation and intergranular corrosion performance specified in EN 13195 using test methods detailed in ASTM G66 and ASTM G67.

Table 32 — Alloy EN AW-5088 [AlMg5Mn0,4]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness HBW[b]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	3,0	6,0	285		135			26	1,5 t	1,0 t	
	6,0	12,5	285		135			26	1,5 t	1,0 t	
H111	3,0	6,0	285		135			26	1,5 t	1,0 t	
	6,0	12,5	285		135			26	1,5 t	1,0 t	

a For information only.

b No data available.

Table 33 — Alloy EN AW-5154A [Al Mg3,5(A)]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	215								
O	0,2	0,5	215	275	85		12		0,5 t	0,5 t	58
	0,5	1,5	215	275	85		13		0,5 t	0,5 t	58
	1,5	3,0	215	275	85		15		1,0 t	1,0 t	58
	3,0	6,0	215	275	85		17			1,5 t	58
	6,0	12,5	215	275	85		18			2,5 t	58
	12,5	50,0	215	275	85			16			58
H111	0,2	0,5	215	275	85		12		0,5 t	0,5 t	58
	0,5	1,5	215	275	85		13		0,5 t	0,5 t	58
	1,5	3,0	215	275	85		15		1,0 t	1,0 t	58
	3,0	6,0	215	275	85		17			1,5 t	58
	6,0	12,5	215	275	85		18			2,5 t	58
	12,5	50,0	215	275	85			16			58
H112	≥ 6,0	12,5	220		125		8				63
	12,5	40,0	215		90			9			59
	40,0	80,0	215		90			13			59
H12	0,2	0,5	250	305	190		3				75
	0,5	1,5	250	305	190		4				75
	1,5	3,0	250	305	190		5				75
	3,0	6,0	250	305	190		6				75
	6,0	12,5	250	305	190		7				75
	12,5	40,0	250	305	190			6			75
H14	0,2	0,5	270	325	220		2				81
	0,5	1,5	270	325	220		3				81
	1,5	3,0	270	325	220		3				81
	3,0	6,0	270	325	220		4				81
	6,0	12,5	270	325	220		5				81
	12,5	25,0	270	325	220			4			81

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	$A_{50\ mm}$	A	180°	90°	
H18	0,2	0,5	310		270		1				94
	0,5	1,5	310		270		1				94
	1,5	3,0	310		270		1				94
H19	0,2	0,5	330		285		1				100
	0,5	1,5	330		285		1				100
H22	0,2	0,5	250	305	180		5		1,5 t	0,5 t	74
	0,5	1,5	250	305	180		6		1,5 t	1,0 t	74
	1,5	3,0	250	305	180		7		2,0 t	2,0 t	74
	3,0	6,0	250	305	180		8			2,5 t	74
	6,0	12,5	250	305	180		10			4,0 t	74
	12,5	40,0	250	305	180			9			74
H32	0,2	0,5	250	305	180		5		1,5 t	0,5 t	74
	0,5	1,5	250	305	180		6		1,5 t	1,0 t	74
	1,5	3,0	250	305	180		7		2,0 t	2,0 t	74
	3,0	6,0	250	305	180		8			2,5 t	74
	6,0	12,5	250	305	180		10			4,0 t	74
	12,5	40,0	250	305	180			9			74
H24	0,2	0,5	270	325	200		4		2,5 t	1,0 t	80
	0,5	1,5	270	325	200		5		2,5 t	2,0 t	80
	1,5	3,0	270	325	200		6		3,0 t	2,5 t	80
	3,0	6,0	270	325	200		7			3,0 t	80
	6,0	12,5	270	325	200		8			4,0 t	80
	12,5	25,0	270	325	200			7			80
H34	0,2	0,5	270	325	200		4		2,5 t	1,0 t	80
	0,5	1,5	270	325	200		5		2,5 t	2,0 t	80
	1,5	3,0	270	325	200		6		3,0 t	2,5 t	80
	3,0	6,0	270	325	200		7			3,0 t	80
	6,0	12,5	270	325	200		8			4,0 t	80
	12,5	25,0	270	325	200			7			80

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H26	0,2	0,5	290	345	230		3				87
	0,5	1,5	290	345	230		3				87
	1,5	3,0	290	345	230		4				87
	3,0	6,0	290	345	230		5				87
H36	0,2	0,5	290	345	230		3				87
	0,5	1,5	290	345	230		3				87
	1,5	3,0	290	345	230		4				87
	3,0	6,0	290	345	230		5				87
H28	0,2	0,5	310		250		3				93
	0,5	1,5	310		250		3				93
	1,5	3,0	310		250		3				93
H38	0,2	0,5	310		250		3				93
	0,5	1,5	310		250		3				93
	1,5	3,0	310		250		3				93
[a] For information only.											

Table 34 — Alloy EN AW-5182 [Al Mg4,5Mn0,4]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	255								
O	0,2	0,5	255	315	110		11		1,0 t		69
	0,5	1,5	255	315	110		12		1,0 t		69
	1,5	3,0	255	315	110		13		1,0 t		69
H111	0,2	0,5	255	315	110		11		1,0 t		69
	0,5	1,5	255	315	110		12		1,0 t		69
	1,5	3,0	255	315	110		13		1,0 t		69
H19	0,2	0,5	380		320		1				114
	0,5	1,5	380		320		1				114
[a] For information only.											

Table 35 — Alloy EN AW-5251 [Al Mg2Mn0,3]

Temper	Specified thickness		Tensile strength		Yield strength		Elongation min.		Bend radius[a]		Hardness[a]
	mm		R_m MPa		$R_{p0,2}$ MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	80,0	160								
O	0,2	0,5	160	200	60		13		0 t	0 t	44
	0,5	1,5	160	200	60		14		0 t	0 t	44
	1,5	3,0	160	200	60		16		0,5 t	0,5 t	44
	3,0	6,0	160	200	60		18			1,0 t	44
	6,0	12,5	160	200	60		18			2,0 t	44
	12,5	50,0	160	200	60			18			44
H111	0,2	0,5	160	200	60		13		0 t	0 t	44
	0,5	1,5	160	200	60		14		0 t	0 t	44
	1,5	3,0	160	200	60		16		0,5 t	0,5 t	44
	3,0	6,0	160	200	60		18			1,0 t	44
	6,0	12,5	160	200	60		18			2,0 t	44
	12,5	50,0	160	200	60			18			44
H12	0,2	0,5	190	230	150		3		2,0 t	0 t	58
	0,5	1,5	190	230	150		4		2,0 t	1,0 t	58
	1,5	3,0	190	230	150		5		2,0 t	1,0 t	58
	3,0	6,0	190	230	150		8			1,5 t	58
	6,0	12,5	190	230	150		10			2,5 t	58
	12,5	25,0	190	230	150			10			58
H14	0,2	0,5	210	250	170		2		2,5 t	0,5 t	64
	0,5	1,5	210	250	170		2		2,5 t	1,5 t	64
	1,5	3,0	210	250	170		3		2,5 t	1,5 t	64
	3,0	6,0	210	250	170		4			2,5 t	64
	6,0	12,5	210	250	170		5			3,0 t	64
H16	0,2	0,5	230	270	200		1		3,5 t	1,0 t	71
	0,5	1,5	230	270	200		2		3,5 t	1,5 t	71
	1,5	3,0	230	270	200		3		3,5 t	2,0 t	71
	3,0	4,0	230	270	200		3			3,0 t	71

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H18	0,2	0,5	255		230		1				79
	0,5	1,5	255		230		2				79
	1,5	3,0	255		230		2				79
H22	0,2	0,5	190	230	120		4		1,5 t	0 t	56
	0,5	1,5	190	230	120		6		1,5 t	1,0 t	56
	1,5	3,0	190	230	120		8		1,5 t	1,0 t	56
	3,0	6,0	190	230	120		10			1,5 t	56
	6,0	12,5	190	230	120		12			2,5 t	56
	12,5	25,0	190	230	120			12			56
H32	0,2	0,5	190	230	120		4		1,5 t	0 t	56
	0,5	1,5	190	230	120		6		1,5 t	1,0 t	56
	1,5	3,0	190	230	120		8		1,5 t	1,0 t	56
	3,0	6,0	190	230	120		10			1,5 t	56
	6,0	12,5	190	230	120		12			2,5 t	56
	12,5	25,0	190	230	120			12			56
H24	0,2	0,5	210	250	140		3		2,0 t	0,5 t	62
	0,5	1,5	210	250	140		5		2,0 t	1,5 t	62
	1,5	3,0	210	250	140		6		2,0 t	1,5 t	62
	3,0	6,0	210	250	140		8			2,5 t	62
	6,0	12,5	210	250	140		10			3,0 t	62
H34	0,2	0,5	210	250	140		3		2,0 t	0,5 t	62
	0,5	1,5	210	250	140		5		2,0 t	1,5 t	62
	1,5	3,0	210	250	140		6		2,0 t	1,5 t	62
	3,0	6,0	210	250	140		8			2,5 t	62
	6,0	12,5	210	250	140		10			3,0 t	62
H26	0,2	0,5	230	270	170		3		3,0 t	1,0 t	69
	0,5	1,5	230	270	170		4		3,0 t	1,5 t	69
	1,5	3,0	230	270	170		5		3,0 t	2,0 t	69
	3,0	4,0	230	270	170		7			3,0 t	69

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H36	0,2	0,5	230	270	170		3		3,0 t	1,0 t	69
	0,5	1,5	230	270	170		4		3,0 t	1,5 t	69
	1,5	3,0	230	270	170		5		3,0 t	2,0 t	69
	3,0	4,0	230	270	170		7			3,0 t	69
H28	0,2	0,5	255		200		2				77
	0,5	1,5	255		200		3				77
	1,5	3,0	255		200		3				77
H38	0,2	0,5	255		200		2				77
	0,5	1,5	255		200		3				77
	1,5	3,0	255		200		3				77

[a] For information only.

Table 36 — Alloy EN AW-5383 [Al Mg4,5Mn0,9]

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness[a]** HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	0,2	0,5	290	360	145		11		1,0 t	0,5 t	85
	0,5	1,5	290	360	145		12		1,0 t	1,0 t	85
	1,5	3,0	290	360	145		13		1,5 t	1,0 t	85
	3,0	6,0	290	360	145		15			1,5 t	85
	6,0	12,5	290	360	145		16			2,5 t	85
	12,5	50,0	290	360	145			15			85
	50,0	80,0	285	355	135			14			80
	80,0	120,0	275		130			12			76
	120,0	150,0	270		125			12			75

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H111	0,2	0,5	290	360	145		11		1,0 t	0,5 t	85
	0,5	1,5	290	360	145		12		1,0 t	1,0 t	85
	1,5	3,0	290	360	145		13		1,5 t	1,0 t	85
	3,0	6,0	290	360	145		15			1,5 t	85
	6,0	12,5	290	360	145		16			2,5 t	85
	12,5	50,0	290	360	145			15			85
	50,0	80,0	285	355	135			14			80
	80,0	120,0	275		130			12			76
	120,0	150,0	270		125			12			75
H112	≥ 6,0	12,5	290		145		12				85
	12,5	40,0	290		145			10			85
	40,0	80,0	285		135			10			80
H116[b]	≥ 1,5	3,0	330	400	230		8		3,0 t	2,0 t	90
	3,0	6,0	330	400	230		10			2,5 t	90
	6,0	12,5	330	400	230		10			4,0 t	90
	12,5	40,0	330	400	230			10			90
	40,0	80,0	330	400	230			10			84
H321 [b]	≥ 1,5	3,0	330	400	230		8		3,0 t	2,0 t	90
	3,0	6,0	330	400	230		10			2,5 t	90
	6,0	12,5	330	400	230		10			4,0 t	90
	12,5	40,0	330	400	230			10			90
	40,0	80,0	330	400	230			10			84
H22	0,2	0,5	305	380	220		5		2,0 t	0,5 t	90
	0,5	1,5	305	380	220		6		2,0 t	1,5 t	90
	1,5	3,0	305	380	220		7		3,0 t	2,0 t	90
	3,0	6,0	305	380	220		8			2,5 t	90
	6,0	12,5	305	380	220		10			3,5 t	90
	12,5	40,0	305	380	220			9			90

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H32	0,2	0,5	305	380	220		5		2,0 t	0,5 t	90
	0,5	1,5	305	380	220		6		2,0 t	1,5 t	90
	1,5	3,0	305	380	220		7		3,0 t	2,0 t	90
	3,0	6,0	305	380	220		8			2,5 t	90
	6,0	12,5	305	380	220		10			3,5 t	90
	12,5	40,0	305	380	220			9			90
H24	0,2	0,5	340	400	270		4			1,0 t	105
	0,5	1,5	340	400	270		5			2,0 t	105
	1,5	3,0	340	400	270		6			2,5 t	105
	3,0	6,0	340	400	270		7			3,5 t	105
	6,0	12,5	340	400	270		8			4,5 t	105
	12,5	25,0	340	400	270			7			105
H34	0,2	0,5	340	400	270		4			1,0 t	105
	0,5	1,5	340	400	270		5			2,0 t	105
	1,5	3,0	340	400	270		6			2,5 t	105
	3,0	6,0	340	400	270		7			3,5 t	105
	6,0	12,5	340	400	270		8			4,5 t	105
	12,5	25,0	340	400	270			7			105

a For information only.

b Material supplied in the H116 or H321 temper shall be capable of meeting the exfoliation and intergranular corrosion performance specified in EN 13195 using test methods detailed in ASTM G66 and ASTM G67.

Table 37 — Alloy EN AW-5449 [Al Mg2Mn0,8(B)]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	0,5	1,5	190	240	80		14				
	1,5	3,0	190	240	80		16				
H111	0,5	1,5	190	240	80		14				
	1,5	3,0	190	240	80		16				
H22	0,5	1,5	220	270	130		8				
	1,5	3,0	220	270	130		10				
H24	0,5	1,5	240	280	160		6				
	1,5	3,0	240	280	160		7				
H26	0,5	1,5	265	305	190		4				
	1,5	3,0	265	305	190		5				
H28	0,5	1,5	290		230		3				
	1,5	3,0	290		230		4				

[a] No data available.

Table 38 — Alloy EN AW-5449A [Al Mg2Mn0,8(C)]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	0,5	1,5	190	240	80		14				
	1,5	3,0	190	240	80		16				
H111	0,5	1,5	190	240	80		14				
	1,5	3,0	190	240	80		16				
H22	0,5	1,5	220	270	130		8				
	1,5	3,0	220	270	130		10				
H24	0,5	1,5	240	280	160		6				
	1,5	3,0	240	280	160		7				
H26	0,5	1,5	265	305	190		4				
	1,5	3,0	265	305	190		5				
H28	0,5	1,5	290		230		3				
	1,5	3,0	290		230		4				

[a] No data available.

Table 39 — Alloy EN AW-5454 [Al Mg3Mn]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5	120,0	215								
	120,0	150,0	205								
O	0,2	0,5	215	275	85		12		0,5 t	0,5 t	58
	0,5	1,5	215	275	85		13		0,5 t	0,5 t	58
	1,5	3,0	215	275	85		15		1,0 t	1,0 t	58
	3,0	6,0	215	275	85		17			1,5 t	58
	6,0	12,5	215	275	85		18			2,5 t	58
	12,5	80,0	215	275	85			16			58
H111	0,2	0,5	215	275	85		12		0,5 t	0,5 t	58
	0,5	1,5	215	275	85		13		0,5 t	0,5 t	58
	1,5	3,0	215	275	85		15		1,0 t	1,0 t	58
	3,0	6,0	215	275	85		17			1,5 t	58
	6,0	12,5	215	275	85		18			2,5 t	58
	12,5	80,0	215	275	85			16			58
H112	≥ 6,0	12,5	220		125		8				63
	12,5	40,0	215		90			9			59
	40,0	120,0	215		90			13			59
H12	0,2	0,5	250	305	190		3				75
	0,5	1,5	250	305	190		4				75
	1,5	3,0	250	305	190		5				75
	3,0	6,0	250	305	190		6				75
	6,0	12,5	250	305	190		7				75
	12,5	40,0	250	305	190			6			75
H14	0,2	0,5	270	325	220		2				81
	0,5	1,5	270	325	220		3				81
	1,5	3,0	270	325	220		3				81
	3,0	6,0	270	325	220		4				81
	6,0	12,5	270	325	220		5				81
	12,5	25,0	270	325	220			4			81

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H22	0,2	0,5	250	305	180		5		1,5 t	0,5 t	74
	0,5	1,5	250	305	180		6		1,5 t	1,0 t	74
	1,5	3,0	250	305	180		7		2,0 t	2,0 t	74
	3,0	6,0	250	305	180		8			2,5 t	74
	6,0	12,5	250	305	180		10			4,0 t	74
	12,5	40,0	250	305	180			9			74
H32	0,2	0,5	250	305	180		5		1,5 t	0,5 t	74
	0,5	1,5	250	305	180		6		1,5 t	1,0 t	74
	1,5	3,0	250	305	180		7		2,0 t	2,0 t	74
	3,0	6,0	250	305	180		8			2,5 t	74
	6,0	12,5	250	305	180		10			4,0 t	74
	12,5	40,0	250	305	180			9			74
H24	0,2	0,5	270	325	200		4		2,5 t	1,0 t	80
	0,5	1,5	270	325	200		5		2,5 t	2,0 t	80
	1,5	3,0	270	325	200		6		3,0 t	2,5 t	80
	3,0	6,0	270	325	200		7			3,0 t	80
	6,0	12,5	270	325	200		8			4,0 t	80
	12,5	25,0	270	325	200			7			80
H34	0,2	0,5	270	325	200		4		2,5 t	1,0 t	80
	0,5	1,5	270	325	200		5		2,5 t	2,0 t	80
	1,5	3,0	270	325	200		6		3,0 t	2,5 t	80
	3,0	6,0	270	325	200		7			3,0 t	80
	6,0	12,5	270	325	200		8			4,0 t	80
	12,5	25,0	270	325	200			7			80
H26	0,2	0,5	290	345	230		3				87
	0,5	1,5	290	345	230		3				87
	1,5	3,0	290	345	230		4				87
	3,0	6,0	290	345	230		5				87
H36	0,2	0,5	290	345	230		3				87
	0,5	1,5	290	345	230		3				87
	1,5	3,0	290	345	230		4				87
	3,0	6,0	290	345	230		5				87
H28	0,2	0,5	310		250		3				93
	0,5	1,5	310		250		3				93
	1,5	3,0	310		250		3				93
H38	0,2	0,5	310		250		3				93
	0,5	1,5	310		250		3				93
	1,5	3,0	310		250		3				93

[a] For information only.

Table 40 — Alloy EN AW-5456 [Al Mg5Mn1]

Temper	Specified thickness		Tensile strength		Yield strength		Elongation min.		Bend radius[a]		Hardness[a]
	mm		R_m MPa		$R_{p0,2}$ MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	1,20	6,30	290	365	130	205	16			2,5 t	80
	6,30	80,00	285	360	125	205	16	14			80
	80,00	120,00	285		120			12			75
	120,00	160,00	270		115			12			73
	160,00	200,00	265		105			10			70
H 111	1,20	6,30	290	365	130	205	16			2,5 t	80
	6,30	80,00	285	360	125	205	16	14			80
	80,00	120,00	285		120			12			75
	120,00	160,00	270		115			12			73
	160,00	200,00	265		105			10			70
H116[b]	1,60	12,50	315	405	230		10			4 t	90
	12,50	30,00	315	385	230			10			90
	30,00	40,00	305	385	215			10			90
	40,00	80,00	285	370	200			10			85
	80,00	110,00	275		170			10			85
H321[b]	2,50	4,00	330	405	235		10			4 t	90
	4,00	12,50	315	405	230		12				90
	12,50	40,00	305	385	215			10			85
	40,00	80,00	285	370	200			10			85

[a] For information only.

[b] Material supplied in the H116 or H321 temper shall be capable of meeting the exfoliation and intergranular corrosion performance specified in EN 13195 using test methods detailed in ASTM G66 and ASTM G67.

Table 41 — Alloy EN AW-5657 [Al 99,85Mg 1]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H22	0,3	1,0	120	160	80		10				
H242 [b]	0,3	1,0	125	170	100		13				
H24	0,30	11,0	130	170	100		7				
H25	0,30	1,0	140	180	110		5				
H26	0,30	1,0	150	190	120		4				
H28	0,30	1,0	170	190	120		3				

[a] No data available.

[b] This material is subjected to some recrystallization and attendant loss of brightness.

Table 42 — Alloy EN AW-5754 [Al Mg3]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[a]	≥ 2,5 100,0	100,0 150,0	190 180								
O	0,2 0,5 1,5 3,0 6,0 12,5	0,5 1,5 3,0 6,0 12,5 100,0	190 190 190 190 190 190	240 240 240 240 240 240	80 80 80 80 80 80		12 14 16 18 18	 17	0,5 t 0,5 t 1,0 t 1,0 t	0 t 0,5 t 1,0 t 1,0 t 2,0 t	52 52 52 52 52 52
H111	0,2 0,5 1,5 3,0 6,0 12,5	0,5 1,5 3,0 6,0 12,5 100,0	190 190 190 190 190 190	240 240 240 240 240 240	80 80 80 80 80 80		12 14 16 18 18	 17	0,5 t 0,5 t 1,0 t 1,0 t	0 t 0,5 t 1,0 t 1,0 t 2,0 t	52 52 52 52 52 52

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H112	≥ 6,0	12,5	190		100		12				62
	12,5	25,0	190		90			10			58
	25,0	40,0	190		80			12			52
	40,0	80,0	190		80			14			52
H12	0,2	0,5	220	270	170		4				66
	0,5	1,5	220	270	170		5				66
	1,5	3,0	220	270	170		6				66
	3,0	6,0	220	270	170		7				66
	6,0	12,5	220	270	170		9				66
	12,5	40,0	220	270	170			9			66
H14	0,2	0,5	240	280	190		3				72
	0,5	1,5	240	280	190		3				72
	1,5	3,0	240	280	190		4				72
	3,0	6,0	240	280	190		4				72
	6,0	12,5	240	280	190		5				72
	12,5	25,0	240	280	190			5			72
H16	0,2	0,5	265	305	220		2				80
	0,5	1,5	265	305	220		3				80
	1,5	3,0	265	305	220		3				80
	3,0	6,0	265	305	220		3				80
H18	0,2	0,5	290		250		1				88
	0,5	1,5	290		250		2				88
	1,5	3,0	290		250		2				88
H22	0,2	0,5	220	270	130		7		1,5 t	0,5 t	63
	0,5	1,5	220	270	130		8		1,5 t	1,0 t	63
	1,5	3,0	220	270	130		10		2,0 t	1,5 t	63
	3,0	6,0	220	270	130		11			1,5 t	63
	6,0	12,5	220	270	130		10			2,5 t	63
	12,5	40,0	220	270	130			9			63

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H32	0,2	0,5	220	270	130		7		1,5 t	0,5 t	63
	0,5	1,5	220	270	130		8		1,5 t	1,0 t	63
	1,5	3,0	220	270	130		10		2,0 t	1,5 t	63
	3,0	6,0	220	270	130		11			1,5 t	63
	6,0	12,5	220	270	130		10			2,5 t	63
	12,5	40,0	220	270	130			9			63
H24	0,2	0,5	240	280	160		6		2,5 t	1,0 t	70
	0,5	1,5	240	280	160		6		2,5 t	1,5 t	70
	1,5	3,0	240	280	160		7		2,5 t	2,0 t	70
	3,0	6,0	240	280	160		8			2,5 t	70
	6,0	12,5	240	280	160		10			3,0 t	70
	12,5	25,0	240	280	160			8			70
H34	0,2	0,5	240	280	160		6		2,5 t	1,0 t	70
	0,5	1,5	240	280	160		6		2,5 t	1,5 t	70
	1,5	3,0	240	280	160		7		2,5 t	2,0 t	70
	3,0	6,0	240	280	160		8			2,5 t	70
	6,0	12,5	240	280	160		10			3,0 t	70
	12,5	25,0	240	280	160			8			70
H26	0,2	0,5	265	305	190		4			1,5 t	78
	0,5	1,5	265	305	190		4			2,0 t	78
	1,5	3,0	265	305	190		5			3,0 t	78
	3,0	6,0	265	305	190		6			3,5 t	78
H36	0,2	0,5	265	305	190		4			1,5 t	78
	0,5	1,5	265	305	190		4			2,0 t	78
	1,5	3,0	265	305	190		5			3,0 t	78
	3,0	6,0	265	305	190		6			3,5 t	78
H28	0,2	0,5	290		230		3				87
	0,5	1,5	290		230		3				87
	1,5	3,0	290		230		4				87
H38	0,2	0,5	290		230		3				87
	0,5	1,5	290		230		3				87
	1,5	3,0	290		230		4				87

[a] For information only.

Table 43 — Alloy EN AW-6016 [Al Si1,2Mg0,4]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T4	≥ 0,4	3,0	170	250	80	140	24		0,5 t	0,5 t	55
T6	≥ 0,4	3,0	260	300	180	260	10				80

a For information only.

Table 44 — Alloy EN AW-6025 [Al Mg2,5SiMnCu]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness
	mm		MPa		MPa		%				HBW[b]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	≥ 0,2 1,0	1,0 5,0	160 160	220 220	60 60		8 10		0 t 0 t		
H21	≥ 0,2 1,0	1,0 5,0	170 170	220 220	100 100		4 5		0,5 t 1,0 t		
H32	≥ 0,2 0,8 1,5	0,8 1,5 5,0	180 180 180	230 230 230	135 135 135		2 3 4		0,5 t 0,5 t 1,0 t		
H34	≥ 0,2 0,5 1,3	0,5 1,3 5,0	210 210 210	250 250 250	165 165 165		2 2 3		2,0 t 2,0 t 2,0 t		
H36	≥ 0,2 0,5 1,3	0,5 1,3 5,0	220 220 220	260 260 260	185 185 185		2 3 4		3,0 t 3,0 t 3,0 t		

NOTE This alloy can be ordered with protection clads in EN AW-7072.

a For information only.

b No data available.

Table 45 — Alloy EN AW-6056 [Al Si1MgCuMn]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	≥ 0,4	1,5		150		85	14		1,0 t	0,5 t	40
	1,5	3,0		150		85	16		1,0 t	1,0 t	40
	3,0	6,0		150		85	18			1,5 t	40
	6,0	12,5		150		85	17			2,5 t	40
T4	≥ 0,4	1,5	265		135		15		3,0 t [b]	1,5 t [b]	78
	1,5	3,0	265		135		16		3,0 t [b]	2,0 t [b]	78
	3,0	6,0	265		135		18			3,0 t [b]	78
	6,0	12,5	265		135		18			4,0 t [b]	78
T62	≥ 0,4	1,5	390		370		8			3,0 t [b]	115
	1,5	3,0	390		370		10			4,0 t [b]	115
	3,0	6,0	390		370		10			5,0 t [b]	115
	6,0	12,5	390		370		10			6,5 t [b]	115
T78	≥ 0,4	1,5	340		315		6			3,0 t [b]	110
	1,5	3,0	340		315		8			4,0 t [b]	110
	3,0	6,0	340		315		8			5,0 t [b]	110
	6,0	12,5	340		315		8			6,5 t [b]	110

[a] For information only.

[b] Appreciably smaller cold bend radii can be achieved immediately after quenching.

Table 46 — Alloy EN AW-6061 [Al Mg1SiCu]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	≥ 0,4	1,5		150		85	14		1,0 t	0,5 t	40
	1,5	3,0		150		85	16		1,0 t	1,0 t	40
	3,0	6,0		150		85	19			1,0 t	40
	6,0	12,5		150		85	16			2,0 t	40
	12,5	25,0		150				16			40
T4	≥ 0,4	1,5	205		110		12		1,5 t[b]	1,0 t[b]	58
	1,5	3,0	205		110		14		2,0 t[b]	1,5 t[b]	58
	3,0	6,0	205		110		16			3,0 t[b]	58
	6,0	12,5	205		110		18			4,0 t[b]	58
	12,5	40,0	205		110			15			58
	40,0	80,0	205		110			14			58
T451	≥ 0,4	1,5	205		110		12		1,5 t[b]	1,0 t[b]	58
	1,5	3,0	205		110		14		2,0 t[b]	1,5 t[b]	58
	3,0	6,0	205		110		16			3,0 t[b]	58
	6,0	12,5	205		110		18			4,0 t[b]	58
	12,5	40,0	205		110			15			58
	40,0	80,0	205		110			14			58
T42	≥ 0,4	1,5	205		95		12			1,0 t[b]	57
	1,5	3,0	205		95		14			1,5 t[b]	57
	3,0	6,0	205		95		16			3,0 t[b]	57
	6,0	12,5	205		95		18			4,0 t[b]	57
	12,5	40,0	205		95			15			57
	40,0	80,0	205		95			14			57

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\ mm}$	A	180°	90°	
T6	≥ 0,4	1,5	290		240		6			2,5 t[b]	88
	1,5	3,0	290		240		7			3,5 t[b]	88
	3,0	6,0	290		240		10			4,0 t[b]	88
	6,0	12,5	290		240		9			5,0 t[b]	88
	12,5	40,0	290		240			8			88
	40,0	80,0	290		240			6			88
	80,0	100,0	290		240			5			88
	100,0	150,0	275		240			5			84
	150,0	250,0	265		230			4			81
	250,0	350,0	260		220			4			80
	350,0	400,0	260		220			2			80
T651	≥ 0,4	1,5	290		240		6			2,5 t[b]	88
	1,5	3,0	290		240		7			3,5 t[b]	88
	3,0	6,0	290		240		10			4,0 t[b]	88
	6,0	12,5	290		240		9			5,0 t[b]	88
	12,5	40,0	290		240			8			88
	40,0	80,0	290		240			6			88
	80,0	100,0	290		240			5			88
	100,0	150,0	275		240			5			84
	150,0	250,0	265		230			4			81
	250,0	350,0	260		220			4			80
	350,0	400,0	260		220			2			80

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T62	≥ 0,4	1,5	290		240		6			2,5 t[b]	88
	1,5	3,0	290		240		7			3,5 t[b]	88
	3,0	6,0	290		240		10			4,0 t[b]	88
	6,0	12,5	290		240		9			5,0 t[b]	88
	12,5	40,0	290		240			8			88
	40,0	80,0	290		240			6			88
	80,0	100,0	290		240			5			88
	100,0	150,0	275		240			5			84
	150,0	250,0	265		230			4			81
	250,0	350,0	260		220			4			80
	350,0	400,0	260		220			2			80

a For information only.

b Appreciably smaller cold bend radii can be achieved immediately after solution heat treatment.

Table 47 — Alloy EN AW-6082 [Al Si1MgMn]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
O	≥ 0,4	1,5		150		85	14		1,0 t	0,5 t	40
	1,5	3,0		150		85	16		1,0 t	1,0 t	40
	3,0	6,0		150		85	18			1,5 t	40
	6,0	12,5		150		85	17			2,5 t	40
	12,5	25,0		155				16			40

Temper	**Specified thickness**		**Tensile strength** R_m		**Yield strength** $R_{p0,2}$		**Elongation min.**		**Bend radius**[a]		**Hardness**[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	$A_{50\ mm}$	A	180°	90°	
T4	≥ 0,4	1,5	205		110		12		3,0 t [b]	1,5 t [b]	58
	1,5	3,0	205		110		14		3,0 t [b]	2,0 t [b]	58
	3,0	6,0	205		110		15			3,0 t [b]	58
	6,0	12,5	205		110		14			4,0 t [b]	58
	12,5	40,0	205		110			13			58
	40,0	80,0	205		110			12			58
T451	≥ 0,4	1,5	205		110		12		3,0 t [b]	1,5 t [b]	58
	1,5	3,0	205		110		14		3,0 t [b]	2,0 t [b]	58
	3,0	6,0	205		110		15			3,0 t [b]	58
	6,0	12,5	205		110		14			4,0 t [b]	58
	12,5	40,0	205		110			13			58
	40,0	80,0	205		110			12			58
T42	≥ 0,4	1,5	205		95		12			1,5 t [b]	57
	1,5	3,0	205		95		14			2,0 t [b]	57
	3,0	6,0	205		95		15			3,0 t [b]	57
	6,0	12,5	205		95		14			4,0 t [b]	57
	12,5	40,0	205		95			13			57
	40,0	80,0	205		95			12			57
T6	≥ 0,4	1,5	310		260		6			2,5 t [b]	94
	1,5	3,0	310		260		7			3,5 t [b]	94
	3,0	6,0	310		260		10			4,5 t [b]	94
	6,0	12,5	300		255		9			6,0 t [b]	91
	12,5	60,0	295		240			8			89
	60,0	100,0	295		240			7			89
	100,0	150,0	275		240			6			84
	150,0	175,0	275		230			4			83

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
	175,0	350,0	260		220			2			

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
T651	≥ 0,4	1,5	310		260		6			2,5 t [b]	94
	1,5	3,0	310		260		7			3,5 t [b]	94
	3,0	6,0	310		260		10			4,5 t [b]	94
	6,0	12,5	300		255		9			6,0 t [b]	91
	12,5	60,0	295		240			8			89
	60,0	100,0	295		240			7			89
	100,0	150,0	275		240			6			84
	150,0	175,0	275		230			4			83
	175,0	350,0	260		220			2			
T62	≥ 0,4	1,5	310		260		6			2,5 t [b]	94
	1,5	3,0	310		260		7			3,5 t [b]	94
	3,0	6,0	310		260		10			4,5 t [b]	94
	6,0	12,5	300		255		9			6,0 t [b]	91
	12,5	60,0	295		240			8			89
	60,0	100,0	295		240			7			89
	100,0	150,0	275		240			6			84
	150,0	175,0	275		230			4			83
	175,0	350,0	260		220			2			
T61	≥ 0,4	1,5	280		205		10			2,0 t [b]	82
	1,5	3,0	280		205		11			2,5 t [b]	82
	3,0	6,0	280		205		11			4,0 t [b]	82
	6,0	12,5	280		205		12			5,0 t [b]	82
	12,5	60,0	275		200			12			81
	60,0	100,0	275		200			10			81

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
	100,0	150,0	275		200			9			81
	150,0	175,0	275		200			8			81

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T6151	≥ 0,4	1,5	280		205		10			2,0 t [b]	82
	1,5	3,0	280		205		11			2,5 t [b]	82
	3,0	6,0	280		205		11			4,0 t [b]	82
	6,0	12,5	280		205		12			5,0 t [b]	82
	12,5	60,0	275		200			12			81
	60,0	100,0	275		200			10			81
	100,0	150,0	275		200			9			81
	150,0	175,0	275		200			8			81

a For information only.

b Appreciably smaller cold bend radii can be achieved immediately after quenching.

Table 48 — Alloy EN AW-7010 [Al Zn6MgCu]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T6	6,0	12,5	570		520			6		12,0 t	190
	12,5	25,0	570		520			6			190
	25,0	50,0	560		510			5			185
	50,0	76,0	560		510			5			185
	76,0	127,0	550		500			4			185
	127,0	152,4	540		490			2			180
	152,4	203,2	525		480			2			180
	203,2	254,0	505		460			1			175
	254,0	300,0	470		435			1			175
T651	6,0	12,5	570		520			6		12,0 t	190
	12,5	25,0	570		520			6			190
	25,0	50,0	560		510			5			185
	50,0	76,0	560		510			5			185
	76,0	127,0	550		500			4			185
	127,0	152,4	540		490			2			180
	152,4	203,2	525		480			2			180
	203,2	254,0	505		460			1			175
	254,0	300,0	470		435			1			175
T652	6,0	12,5	570		520			6		12,0 t	190
	12,5	25,0	570		520			6			190
	25,0	50,0	560		510			5			185
	50,0	76,0	560		510			5			185
	76,0	127,0	550		500			4			185

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
	127,0	152,4	540		490			2			180
	152,4	203,2	525		480			2			180
	203,2	254,0	505		460			1			175
	254,0	300,0	470		435			1			175

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius[a]**		**Hardness a** HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T62	6,0	12,5	570		520			6		12,0 t	190
	12,5	25,0	570		520			6			190
	25,0	50,0	560		510			5			185
	50,0	76,0	560		510			5			185
	76,0	127,0	550		500			4			185
	127,0	152,4	540		490			2			180
	152,4	203,2	525		480			2			180
	203,2	254,0	505		460			1			175
	254,0	300,0	470		435			1			175
T76[b]	6,0	12,5	525		455			6		12,0 t	
	12,5	51,0	525		455			6			
	51,0	63,5	515		450			6			
	63,5	76,0	510		440			5			
	76,0	102,0	505		435			5			
	102,0	127,0	495		425			5			
	127,0	140,0	495		420			4			
T7651[b]	6,0	12,5	525		455			6		12,0 t	
	12,5	51,0	525		455			6			
	51,0	63,5	515		450			6			
	63,5	76,0	510		440			5			
	76,0	102,0	505		435			5			
	102,0	127,0	495		425			5			
	127,0	140,0	495		420			4			
T74[c]	6,0	12,5	495		425			6		12,0 t	

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
	12,5	51,0	495		425			6			
	51,0	63,5	495		425			6			
	63,5	102,0	490		420			6			
	102,0	127,0	475		405			5			
	127,0	140,0	460		395			5			

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T7451[c]	6,0	12,5	495		425			6		12,0 t	
	12,5	51,0	495		425			6			
	51,0	63,5	495		425			6			
	63,5	102,0	490		420			6			
	102,0	127,0	475		405			5			
	127,0	140,0	460		395			5			
T73[d]	6,0	12,5	470		380			7		12,0 t	
	12,5	51,0	470		380			7			
	51,0	76,0	470		380			7			
	76,0	102,0	460		370			7			
	102,0	127,0	455		365			6			
	127,0	140,0	450		360			5			
T7351[d]	6,0	12,5	470		380			7		12,0 t	
	12,5	51,0	470		380			7			
	51,0	76,0	470		380			7			
	76,0	102,0	460		370			7			
	102,0	127,0	455		365			6			
	127,0	140,0	450		360			5			
Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.											

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness a** HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	

a For information only.

b For lot acceptance purposes, all material in T76 and T7651 tempers shall comply with the following criteria when tested on the previously selected tensile test specimen:

Electrical conductivity γ MS/m	**Mechanical properties**	**Lot acceptance status**
$\gamma \geq 22,6$	as specified	acceptable
$\gamma < 22,6$	as specified	not acceptable The plate may be re-heat treated or given additional precipitation heat treatment to develop tensile properties / conductivity as specified.

c For lot acceptance purposes, all material in T74 and T7451 tempers shall comply with the following criteria when tested on the previously selected tensile test specimen:

Electrical conductivity γ MS/m	**Mechanical properties**	**Lot acceptance status**
$\gamma \geq 23,2$	as specified	acceptable
$\gamma < 23,2$	as specified	not acceptable The plate may be re-heat treated or given additional precipitation heat treatment to develop tensile properties / conductivity as specified.

d For lot acceptance purposes, all material in T73 and T7351 tempers shall comply with the following criteria when tested on the previously selected tensile test specimen:

Electrical conductivity γ MS/m	**Mechanical properties**	**Lot acceptance status**
$\gamma \geq 23,8$	as specified	acceptable
$\gamma < 23,8$	as specified	not acceptable The plate may be re-heat treated or given additional precipitation heat treatment to develop tensile properties / conductivity as specified.

Table 49 — Alloy EN AW-7019 [Al Zn4Mg2]

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[b] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T651	≥ 3,0	6,0	410		350		8				125
	6,0	12,0	400		340		8				125
	12,0	60,0	400		340		8				125
	60,0	80,0	390		330		8				125
	80,0	120,0	390		330		7				125
Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.											

a Data not available.

b For information only.

Table 50 — Alloy EN AW-7020 [Al Zn4,5Mg1]

Temper	Specified thickness		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation min.		Bend radius[a]		Hardness[a]
	mm		MPa		MPa		%				HBW
	over	up to	min.	max.	min.	max.	$A_{50\,mm}$	A	180°	90°	
O	≥ 0,4	1,5		220		140	12				45
	1,5	3,0		220		140	13				45
	3,0	6,0		220		140	15				45
	6,0	12,5		220		140	12				45
T4[c]	≥ 0,4	1,5	320		210		11			2,0 t [b]	92
	1,5	3,0	320		210		12			2,5 t [b]	92
	3,0	6,0	320		210		13			3,5 t [b]	92
	6,0	12,5	320		210		14			5,0 t [b]	92
T451[c]	≥ 0,4	1,5	320		210		11			2,0 t [b]	92
	1,5	3,0	320		210		12			2,5 t [b]	92
	3,0	6,0	320		210		13			3,5 t [b]	92
	6,0	12,5	320		210		14			5,0 t [b]	92
T6	≥ 0,4	1,5	350		280		7			3,5 t [b]	104
	1,5	3,0	350		280		8			4,0 t [b]	104
	3,0	6,0	350		280		10			5,5 t [b]	104
	6,0	12,5	350		280		10			8,0 t [b]	104
	12,5	40,0	350		280			9			104
	40,0	100,0	340		270			8			101
	100,0	150,0	330		260			7			98
	150,0	175,0	330		260			6			98
	175,0	250,0	330		260			5			

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness** [a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\ mm}$	A	180°	90°	
T651	≥ 0,4	1,5	350		280		7			3,5 t [b]	104
	1,5	3,0	350		280		8			4,0 t [b]	104
	3,0	6,0	350		280		10			5,5 t [b]	104
	6,0	12,5	350		280		10			8,0 t [b]	104
	12,5	40,0	350		280			9			104
	40,0	100,0	340		270			8			101
	100,0	150,0	330		260			7			98
	150,0	175,0	330		260			6			98
	175,0	250,0	330		260			5			
T62	≥ 0,4	1,5	350		280		7			3,5 t [b]	104
	1,5	3,0	350		280		8			4,0 t [b]	104
	3,0	6,0	350		280		10			5,5 t [b]	104
	6,0	12,5	350		280		10			8,0 t [b]	104
	12,5	40,0	350		280			9			104
	40,0	100,0	340		270			8			101
	100,0	150,0	330		260			7			98
	150,0	175,0	330		260			6			98
	175,0	250,0	330		260			5			

Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.

a For information only.

b Appreciably smaller cold bend radii can be achieved immediately after quenching.

c Use of this alloy in the T4 or T451 temper for finished products shall be avoided. The specified mechanical properties are achieved after 3 months of natural ageing at ambient temperature. This natural ageing may be approximated by maintaining the quenched test piece for about 60 h at a temperature between 60 °C and 65 °C.

Table 51 — Alloy EN AW-7021 [Al Zn5,5Mg1,5]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[b] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T6	≥ 1,5	3,0	400		350		7				121
	3,0	6,0	400		350		8				121
Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.											
a Data not available. b For information only.											

Table 52 — Alloy EN AW-7022 [Al Zn5Mg3Cu]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness HBW[b]
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T6	≥ 3,0	12,5	450		370		8				133
	12,5	25,0	450		370			8			133
	25,0	50,0	450		370			7			133
	50,0	100,0	430		350			5			127
	100,0	200,0	410		330			3			121
T651	≥ 3,0	12,5	450		370		8				133
	12,5	25,0	450		370			8			133
	25,0	50,0	450		370			7			133
	50,0	100,0	430		350			5			127
	100,0	200,0	410		330			3			121
Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.											
a No data available. b For information only.											

Table 53 — Alloy EN AW-7075 [Al Zn5,5MgCu]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	$A_{50\ mm}$	A	180°	90°	
O	≥ 0,4	0,8		275		145	10		1,0 t	0,5 t	55
	0,8	1,5		275		145	10		2,0 t	1,0 t	55
	1,5	3,0		275		145	10		3,0 t	1,0 t	55
	3,0	6,0		275		145	10			2,5 t	55
	6,0	12,5		275		145	10			4,0 t	55
	12,5	75,0		275				9			55
T6	≥ 0,4	0,8	525		460		6			4,5 t[b]	157
	0,8	1,5	540		460		6			5,5 t[b]	160
	1,5	3,0	540		470		7			6,5 t[b]	161
	3,0	6,0	545		475		8			8,0 t[b]	163
	6,0	12,5	540		460		8			12,0 t[b]	160
	12,5	25,0	540		470			6			161
	25,0	50,0	530		460			5			158
	50,0	60,0	525		440			4			155
	60,0	80,0	495		420			4			147
	80,0	90,0	490		390			4			144
	90,0	100,0	460		360			3			135
	100,0	120,0	410		300			2			119
	120,0	150,0	360		260			2			104
	150,0	200,0	360		240			2			
	200,0	300,0	360		220			1			

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T651	≥ 0,4	0,8	525		460		6			4,5 t[b]	157
	0,8	1,5	540		460		6			5,5 t[b]	160
	1,5	3,0	540		470		7			6,5 t[b]	161
	3,0	6,0	545		475		8			8,0 t[b]	163
	6,0	12,5	540		460		8			12,0 t[b]	160
	12,5	25,0	540		470			6			161
	25,0	50,0	530		460			5			158
	50,0	60,0	525		440			4			155
	60,0	80,0	495		420			4			147
	80,0	90,0	490		390			4			144
	90,0	100,0	460		360			3			135
	100,0	120,0	410		300			2			119
	120,0	150,0	360		260			2			104
	150,0	200,0	360		240			2			
	200,0	300,0	360		220			1			
T62	≥ 0,4	0,8	525		460		6			4,5 t[b]	157
	0,8	1,5	540		460		6			5,5 t[b]	160
	1,5	3,0	540		470		7			6,5 t[b]	161
	3,0	6,0	545		475		8			8,0 t[b]	163
	6,0	12,5	540		460		8			12,0 t[b]	160
	12,5	25,0	540		470			6			161
	25,0	50,0	530		460			5			158
	50,0	60,0	525		440			4			155
	60,0	80,0	495		420			4			147
	80,0	90,0	490		390			4			144
	90,0	100,0	460		360			3			135
	100,0	120,0	410		300			2			119
	120,0	150,0	360		260			2			104
	150,0	200,0	360		240			2			
	200,0	300,0	360		220			1			

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
T652	150,0	200,0	360		240			2			
	200,0	300,0	360		220			1			
T76[c]	≥ 1,5	3,0	500		425		7				149
	3,0	6,0	500		425		8				149
	6,0	12,5	490		415		7				146
T7651[c]	≥ 1,5	3,0	500		425		7				149
	3,0	6,0	500		425		8				149
	6,0	12,5	490		415		7				146
T73d	≥ 1,5	3,0	460		385		7				137
	3,0	6,0	460		385		8				137
	6,0	12,5	475		390		7				140
	12,5	25,0	475		390			6			140
	25,0	50,0	475		390			5			140
	50,0	60,0	455		360			5			133
	60,0	80,0	440		340			5			129
	80,0	100,0	430		340			5			126
T7351d	≥ 1,5	3,0	460		385		7				137
	3,0	6,0	460		385		8				137
	6,0	12,5	475		390		7				140
	12,5	25,0	475		390			6			140
	25,0	50,0	475		390			5			140
	50,0	60,0	455		360			5			133
	60,0	80,0	440		340			5			129
	80,0	100,0	430		340			5			126
Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user consult the producer in order to make a precise and appropriate selection of the material.											

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[a] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	

a For information only.

b Appreciably smaller cold bend radii can be achieved immediately after quenching.

c For lot acceptance purposes, all material in T76 and T7651 tempers shall comply with the following criteria when tested on the previously selected tensile test specimen:

Electrical conductivity γ

MS/m **Mechanical properties** **Lot acceptance status**

$\gamma \geq 22,0$ as specified acceptable

$21,0 \leq \gamma < 22,0$ as specified and $R_{p0,2}$ does not exceed minimum by more than 85 MPa acceptable

$21,0 \leq \gamma < 22,0$ as specified and $R_{p0,2}$ exceeds minimum by more than 85 MPa acceptable if the EXCO test gives satisfactory results

$\gamma < 21,0$ any level not acceptable

d For lot acceptance purposes, all material in T73 and T7351 tempers shall comply with the following criteria when tested on the previously selected tensile test specimen:

Electrical conductivity γ

MS/m **Mechanical properties** **Lot acceptance status**

$\gamma \geq 23,0$ as specified acceptable

$22,0 \leq \gamma < 23,0$ as specified and $R_{p0,2}$ does not exceed minimum by more than 85 MPa acceptable

$22,0 \leq \gamma < 23,0$ as specified and $R_{p0,2}$ exceeds minimum by more than 85 MPa acceptable if the electrical conductivity measured within 15 min of an additional solution treatment and quench shows a loss of at least 3,5 MS/m from its initial value

$\gamma < 22,0$ any level not acceptable

Table 54 — Alloy EN AW-8011A [Al FeSi(A)]

Temper	Specified thickness mm		Tensile strength R_m MPa		Yield strength $R_{p0,2}$ MPa		Elongation min. %		Bend radius[a]		Hardness[b] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
F[b]	≥ 2,5	80,0	85								
O	0,2	0,5	85	130	30		19				25
	0,5	1,5	85	130	30		21				25
	1,5	3,0	85	130	30		24				25
	3,0	6,0	85	130	30		25				25
	6,0	12,5	85	130	30		30				25

Temper	**Specified thickness** mm		**Tensile strength** R_m MPa		**Yield strength** $R_{p0,2}$ MPa		**Elongation min.** %		**Bend radius**[a]		**Hardness**[b] HBW
	over	up to	min.	max.	min.	max.	A_{50} mm	A	180°	90°	
H111	0,2	0,5	85	130	30		19				25
	0,5	1,5	85	130	30		21				25
	1,5	3,0	85	130	30		24				25
	3,0	6,0	85	130	30		25				25
	6,0	12,5	85	130	30		30				25
H14	0,2	0,5	120	170	110		1				41
	0,5	1,5	125	165	110		3				41
	1,5	3,0	125	165	110		3				41
	3,0	6,0	125	165	110		4				41
	6,0	12,5	125	165	110		5				41
H16	0,2	0,5	140	190	130		1				47
	0,5	1,5	145	185	130		2				47
	1,5	4,0	145	185	130		3				47
H18	0,2	0,5	160		145		1				50
	0,5	1,5	165		145		2				50
	1,5	3,0	165		145		2				50
H22	0,2	0,5	105	145	90		4				35
	0,5	1,5	105	145	90		5				35
	1,5	3,0	105	145	90		6				35
H24	0,2	0,5	125	165	100		3				40
	0,5	1,5	125	165	100		4				40
	1,5	3,0	125	165	100		5				40
	3,0	6,0	125	165	100		6				40
	6,0	12,5	125	165	100		7				40
H26	0,2	0,5	145	185	120		2				46
	0,5	1,5	145	185	120		3				46
	1,5	4,0	145	185	120		4				46

a No data available.

b For information only.

Annex A
(normative)

Rules for rounding

In recording test results, the number representing the result of a test to determine a given property shall be expressed to the same number of decimal places as the corresponding number in this European Standard.

The following rounding rules shall be used for determination of compliance with this European Standard:

— when the figure immediately after the last figure to be retained is less than five, the last figure to be retained remains unchanged;

— when the figure immediately after the last figure to be retained is greater than five, or equal to five and followed by at least one figure other than zero, the last figure to be retained is increased by one;

— when the figure immediately after the last figure to be retained is equal to five and followed by zeros only, the last figure to be retained remains unchanged if even and is increased by one if odd.

Bibliography

[1] Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products

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

[3] EN 515, *Aluminium and aluminium alloys - Wrought products - Temper designations*

[4] EN 573-3, *Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition and form of products*

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

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