Chemical composition

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others	Others
Minimum	0,70			0,40	0,60				Each	Total
Maximum	1,30	0,50	0,10	1,00	1,20	0,25	0,20	0,10	0,05	0,10

International Equivalences

Europe	USA	Spain	France	Germany	G.B.	Italy	Sweden	Switzerland	Japan
E.N. 573	A.A.	U.N.E.	AFNOR	D.I.N.	B.S.	U.N.I.	S.I.S.	V.S.M.	J.I.S.
EN AW 6082	6082	38.348 L-3453	A-SGM0,7	ALMgSi1 3.3215	H30	3571 9006-P4	4212	ALMgSi1Mn	

Mechanical properties of sheets Standard: EN 485-2 Aluminium EN AW-6082 [Al Si1MgMn]

Treatment state	Nominal thickness mm		R_m MPa		$R_{p0,2}$ MPa		Min. elongation %		Bending radius		Hardness HBS[1]
	Greater than	up to	min.	max.	min.	max.	A_{50mm}	A	180º	90º	
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
T4, T451	≥0,4	1,5	205		110		12		3,0 *t*	1,5 *t*	58
	1,5	3,0	205		110		14		3,0 *t*	2,0 *t*	58
	3,0	6,0	205		110		15			3,0 *t*	58
	6,0	12,5	205		110		14			4,0 *t*	58
T451	12,5	40,0	205		110			13			58
	40,0	80,0	205		110			12			58
T42[2]	≥0,4	1,5	205		95		12			1,5 *t*	57
	1,5	3,0	205		95		14			2,0 *t*	57
	3,0	6,0	205		95		15			3,0 *t*	57
	6,0	12,5	205		95		14			4,0 *t*	57
	12,5	40,0	205		95			13			57
	40,0	80,0	205		95			12			57
T6, T651, T62[2]	≥0,4	1,5	310		260		6			2,5 *t*	94
	1,5	3,0	310		260		7			3,5 *t*	94
	3,0	6,0	310		260		10			4,5 *t*	94
	6,0	12,5	300		255		9			6,0 *t*	91
T651, T62	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

1) Solely for information.
2) Far lower bending radii can be obtained immediately after the tempering.

Mechanical properties

Standard: EN 755-2 **Alloy: EN AW-6082 [Al Si1MgMn]**

Extruded bar

Treatment state	Measurements mm		R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %	Hardness HBS
	D[1]	S[2]	min.	max.	min.	max.	min	min.	
O, H111	≤ 200	≤ 200	–	160	–	110	14	12	40
T4	≤ 200	≤ 200	205	–	110	–	14	12	60
T6	≤ 20	≤ 20	295	–	250	–	8	6	95
	20 < *D* ≤ 150	20 < *S* ≤ 150	310		260		8		95
	150 < *D* ≤ 200	150 < *S* ≤ 200	280		240		6		95
	200 < *D* ≤ 250	200 < *S* ≤ 250	270		200		6		95

Extruded tube

Treatment state	Measurements mm e[3]	R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
		min.	max. min.		max.	min	min.
T6	≤ 5	290	–	250	–	8	6
	5 < *e* ≤ 25	310	– 260		–	10	8

Extruded profile

Treatment state	Measurements mm e[3]	R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
		min.	max. min. max.			min	min.
Perfil hueco T5	≤ 5	270	–	230	–	8	6
T6	≤ 5	290	– 250 –			8	6
	5 < *e* ≤ 15	310	–	260	–	10	8

1) D = Diameter of circular section bars.
2) S = Distance between faces for square-section and hexagonal bars, thickness for rectangular section bars.
3) e = Wall thickness.

Physical properties

Modulus of elasticity N/mm²	Specific weight g/cm³	Melting temperature ºC	Linear expansion coefficient 1/10⁶K	Thermal conductivity W/mK	Electrical resistivity at 20ºC - μΩ cm	Electrical conductivity% IACS	Dissolution potential V
70.000	2,71	575-650	23,1	T4-167 T6-172	T4-4,1 T5-3,9	T4-42 T6-44	-0,83

Technological suitabilities

Welding		Natural behaviour		Anodized		Mechanization	State 0	State T6
Under flame	MB	In a rural environment	MB	For protection	MB	Chip fragmentation	M	R
At the arc under argon gas	B	In an industrial environment	MB	Decorative	R	Surface gloss	R	MB
Owing to electrical resistance	MB	In a marine environment	B	Hard anodized	MB			
Brazed	B	In sea water	R					

Thermal treatments

Forging temperature interval: 350º-500ºC.
Total annealing: 420ºC with long-term cooling up to 250ºC. Annealing against acridity: 340ºC

Products

Bars, wires, extruded profiles, tubes, sheets, plates.

Observations and applications

Alloy similar to 6061. Good mechanical characteristics in T6 state. Good corrosion-proofing and suitability for anodization both hard and protection as well as good arc welding. Applications: structural elements as a whole, shipbuilding and aerospace industry, railway constructions, moulds and machined parts etc.

Chemical composition

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Al
Minimum	0,40		0,15		0,80	0,04			0,40	0,40	
Maximum	0,80	0,70	0,40	0,15	1,20	0,14	0,25	0,15	0,70	0,70	rest

International Equivalences

Europe	USA	Spain	France	Germany	G.B.	Italy	Sweden	Switzerland	Japan
E.N. 573	A.A.	U.N.E.	AFNOR	D.I.N.	B.S.	U.N.I.	S.I.S.	V.S.M.	J.I.S.
EN AW 6262	6262								

Mechanical properties — Standard: EN 755-2 — Alloy: EN AW-6262 [Al Mg1SiPb]

Extruded bar

Treatment state	Measurements mm		R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
	D[1]	S[2]	min.	max.	min.	max.	min	min.
T6[5]	≤ 200	≤ 200	260	–	240	–	10	8

Extruded tube

Treatment state	Measurements mm e[3]	R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
		min.	max.	min. max.		min	min.
T6[5]	≤ 25	260	–	240	–	10	8

Extruded profile

Treatment state	Measurements mm e[3]	R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
		min.	max.	min.	max.	min	min.
T6[5]	≤ 25	260	–	240	–	10	8

1) D = Diameter of circular section bars.
2) S = Distance between faces for square-section and hexagonal bars, thickness for rectangular section bars.
3) e = Wall thickness.
5) The characteristics can be obtained by means of cooling in a press

Physical properties

Modulus of elasticity N/mm²	Specific weight g/cm³	Melting temperature ºC	Linear expansion coefficient 1/10⁶K	Thermal conductivity W/mK	Electrical resistivity at 20ºC - μΩ cm	Electrical conductivity% IACS	Dissolution potential V
70.000	2,75	580-650	23,5	167 (T6)	4,3 (T6)	T6-29,8	-0,79

Technological suitabilities

Welding		Natural behaviour		Anodized		Mechanization	State T5	State T9
Under flame	B	In a rural environment	B	For protection	MB	Chip fragmentation	MB	MB
At the arc under argon gas	R	In an industrial environment	B	Decorative	B	Surface gloss	B	B
Owing to electrical resistance	B	In a marine environment	R	Hard anodized	MB			
Brazed	R	In sea water	R					

Thermal treatments	Products	Observations and applications
Forging temperature interval: 340º-480ºC. Total annealing: 420ºC with long-term cooling up to 250ºC. Annealing against acridity: 340ºC	Bars, extruded profiles, tubes.	This alloy is typically used for manufacturing parts which require easy machining and are highly suitable for anodization.

Chemical composition

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Others	Others	Al
Minimum				0,05	1,0	0,10	4,0	Each	Total	
Maximum	0,35	0,40	0,20	0,50	1,4	0,35	5,0	0,05	0,15	Rest

International Equivalences

Europe	USA	Spain	France	Germany	G.B.	Italy	Sweden	Switzerland	Japan
E.N. 573	A.A.	U.N.E.	AFNOR	D.I.N.	B.S.	U.N.I.	S.I.S.	V.S.M.	J.I.S.
En AW 7020	7020	L3741 38.374	A-Z4G	AlZn4,5Mg1 3.4335	H17	7791 9007/P1	4425	AlZn4,5Mg1	A7020

Mechanical properties of sheets Standard: EN 485-2 Aluminium EN AW-7020 [Al Zn4,5Mg1]

Treatment state	Nominal thickness mm		R_m MPa		$R_{p0,2}$ MPa		Min. elongation %		Bending radius		Hardness HBS[1]
	Greater than	up to	min.	max.	min.	max.	A_{50mm}	A	180º	90º	
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, T451[2)3)]	≥0,4	1,5	320		210		11			2,0 *t*	92
	1,5	3,0	320		210		12			2,5 *t*	92
	3,0	6,0	320		210		13			3,5 *t*	92
	6,0	12,5	320		210		14			5,0 *t*	92
T6, T651, T62[2)]	≥0,4	1,5	350		280		7			3,5 *t*	104
	1,5	3,0	350		280		8			4,0 *t*	104
	3,0	6,0	350		280		10			5,5 *t*	104
	6,0	12,5	350		280		10			8,0 *t*	104
T651	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

For new applications of this alloy, which entails certain properties like corrosion-proofing, toughness, fatigue resistance, you are strongly recommended to consult us with a view to making a more thorough selection of the material.
1) Solely for information.
2) Far lower bending radii can be obtained immediately after the tempering.
3) Avoid use of this alloy in finished products in states T4 or T451. The mechanical properties specified are obtained only after three months natural aging at room temperature. This maturation can be roughly obtained keeping the samples tempered for 60h at a temperature between 60 °C and 65 °C.

Mechanical properties

Standard: EN 755-2 **Alloy: EN AW-7020 [Al Zn4,5Mg1]**

Extruded bar

Treatment state	Measurements mm		R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
	D[1]	S[2]	min.	max.	min.	max.	min	min.
T6[5]	≤ 50	≤ 50	350	–	290	–	10	8
	50 < *D* ≤ 200	50 < *S* ≤ 200	340	–	275	–	10	–

Extruded tube

Treatment state	Measurements mm e[3]	R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
		min.	max. min.		max.	min	min.
T6[5]	≤ 15	350	–	290	–	10	8

Extruded profile

Treatment state	Measurements mm e[3]	R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
		min.	max. min. max.			min	min.
T6[5]	≤ 40	350	– 290 –			10	8

1) D = Diameter of circular section bars.
2) S = Distance between faces for square-section and hexagonal bars, thickness for rectangular section bars.
3) e = Wall thickness.
5) The characteristics can be obtained by means of cooling in a press.

Physical properties

Modulus of elasticity N/mm²	Specific weight g/cm³	Melting temperature ºC	Linear expansion coefficient 1/10⁶K	Thermal conductivity W/mK	Electrical resistivity at 20ºC - μΩ cm	Electrical conductivity% IACS	Dissolution potential V
70.000	2,78	605-645	23,3	T5-139 T6-140	T5-5 T6-5	T5-35 T6-35	

Technological suitabilities

Welding		Natural behaviour		Anodized		Mechanization	State T5	State T6
Under flame	B	In a rural environment	B	For protection	B	Chip fragmentation	B	B
At the arc under argon gas	B	In an industrial environment	B	Decorative	R	Surface gloss	B	B
Owing to electrical resistance	B	In a marine environment	R	Hard anodized	MB			
Brazed	B	In sea water	R					

Thermal treatments	Products	Observations and applications
	Bars, extruded profiles, tubes, sheets, plates.	Alloy endowed with average mechanical characteristics, but highly suitable for welding, good corrosion resistance and good surface finish after protection anodization and hard. Typical uses of this alloy are: structures entailing welding, with tempering treatment not being vital after welding as maturation is sufficient to obtain good mechanical characteristics. It is also used in mechanical applications, armament, transport, aeronautical constructions etc.

Chemical composition

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Ti+Zr	Others
Minimum			0,50	0,10	2,60	0,10	4,30			
Maximum	0,50	0,50	1,00	0,40	3,70	0,30	5,20		0,20	0,05

International Equivalences

Europe	USA	Spain	France	Germany	G.B.	Italy	Sweden	Switzerland	Japan
E.N. 573	A.A.	U.N.E.	AFNOR	D.I.N.	B.S.	U.N.I	S.I.S.	V.S.M.	J.I.S.
En AW 7022				AlMgCu0,5 3.4345		9007/5			

Mechanical properties of sheets Standard: EN 485-2 Aluminium EN AW-7022 [Al Zn5Mg3Cu]

Treatment state	Nominal thickness mm		R_m MPa		$R_{p0,2}$ MPa		Min. elongation %		Bending radius		Hardness HBS[1)]
	Greater than	up to	min.	max.	min.	max.	A_{50mm}	A	180º	90º	
T6	6,0	12,5	450		370		8				133
T6, T651	12,5	25,0	450		370			8			133
	25,0	50,0	450		370			7			133
	50,0	100,0	430		370			5			127
	100,0	200,0	410		370			3			121

For new applications of this alloy, which entails certain properties like corrosion-proofing, toughness, fatigue resistance, you are strongly recommended to consult us with a view to making a more thorough selection of the material.
1) Solely for information.

Mechanical properties Standard: EN 755-2 Alloy: EN AW-7022 [Al Zn5Mg3Cu]

Extruded bar

Treatment state	Measurements mm		R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
	D[1)]	S[2)]	min.	max.	min.	max.	min	min.
T6, T6510, T6511[5)]	≤ 80	≤ 80	490	–	420	–	7	5
	80 < *D* ≤ 200	80 < *S* ≤ 200	470	–	400	–	7	–

Extruded tube

Treatment state	Measurements mm e[3)]	R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
		min.	max. min.		max.	min	min.
T6, T6510, T6511[5)]	≤ 30	490	–	420	–	7	5

Extruded profile

Treatment state	Measurements mm e[3)]	R_m MPa		$R_{p0,2}$ MPa		A %	$A_{50\ mm}$ %
		min.	max. min. max.			min	min.
T6, T6510, T6511[5)]	≤ 30	490	–	420	–	7	5

1) D = Diameter of circular section bars.
2) S = Distance between faces for square-section and hexagonal bars, thickness for rectangular section bars.
3) e = Wall thickness.
5) The characteristics can be obtained by means of cooling in a press.