



ALUMINIUMS Alloys Aluminium - Magnesium - Silicon 6012

Chemical composition

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Al
Minimum	0,60			0,40	0,60				0,40		
Maximum	1,40	0,50	0,10	1,00	1,20	0,30	0,30	0,20	2,00	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 6012	6012	38.344 L-3452	A-SGPbBi	AlMgSiPb 3.0615					

Mechanical properties

Standard: EN 755-2

Alloy: EN AW-6012 [Al MgSiPb]

Extruded bar

Treatment state	Measurements mm		R _m MPa		R _{p0,2} MPa		A %	A _{50 mm} %	Hardness HB
	D ¹⁾	S ²⁾	min.	max.	min.	max.	min	min.	
T6, T6510, T6511 ⁵⁾	≤ 150	≤ 150	310	–	260	–	8	6	80
	150 < D ≤ 200	150 < S ≤ 200	260	–	200	–	8	–	80

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	310	–	260	–	8	6

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	310	–	260	–	8	6

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



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Physical properties

Modulus of elasticity N/mm ²	Specific weight g/cm ³	Melting temperature °C	Linear expansion coefficient 1/10 ⁶ K	Thermal conductivity W/mK	Electrical resistivity at 20°C - μΩ cm	Electrical conductivity% IACS	Dissolution potential V
69.000	2,75	580-650	23,5	167 (T6)	4,2 (T6)		

Technological suitabilities

Welding		Natural behaviour		Anodized		Mechanization	State: T6	T8
Under flame	B	In a rural environment	B	For protection	MB	Chip fragmentation	MB	MB
At the arc under argon gas	B	In an industrial environment	B	Decorative	B	Surface gloss	B	B
Owing to electrical resistance	MB	In a marine environment	B	Hard anodized	MB			
Brazed	B	In sea water	R					

Thermal treatments

Forging temperature interval: 340°-480°C.
 Total annealing: 420°C with long-term cooling up to 250°C.
 Annealing against acidity: 340°C

Products

Bars, extruded profiles, tubes.

Observations and applications

This alloy is typically used for manufacturing parts which require easy machining and are highly suitable for anodization.