

Designation	AlMg3	DIN 3.3535	EN Nr. AW5754	UNS (ASTM) AA5754	AISI -	LMSA B700
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Chemical composition

Al	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others*
Bal.	≤ 0.40	≤ 0.40	≤ 0.10	≤ 0.50	2.60 - 3.60	≤ 0.30	≤ 0.20	≤ 0.15	≤ 0.15

Values (Weight %). In order to achieve maximum homogeneity and consistent quality, the actual manufacturing tolerances are tighter and more precisely than the composition indicated.

* Total 0.15 % max, individually 0.05% max.

Main technical properties and features

Aluminum and aluminum alloys have many characteristics which cannot be replaced by other materials. These encompass low density, almost 3 times lower than that of steel, corrosion resistance due to the Al₂O₃ oxide coating, developing at the surface and easy formability. The aluminum-magnesium alloys, like AlMg3, typically contain less than 4 % of magnesium and are not precipitation hardenable. Most of the magnesium contained in the alloys is in solid solution. Therefore, the hardening of the AlMg3, Peraluman 300, is only due to the cold deformation. Lamineries MATTHEY offers AlMg3 (AA5754), Peraluman 300 precision cold rolled strips and foils in different tempers.

For an aluminum alloy, the AlMg3 (AW5754, AA5754) Peraluman 300 presents relatively high mechanical properties in the cold rolled temper. Its corrosion resistance, especially in the salt water and the industrial field is very high. The best corrosion resistance is obtained in the soft temper, because a long exposition of the cold rolled strips at low temperatures can provoke the precipitation of Mg₂Al₃ at the grain boundaries, which can induce intergranular corrosion and stress corrosion cracking. This alloy has an excellent polishing ability and can be easily anodized. However, its brazability is low. The electrical conductivity of the Peraluman 300 is lower than those of pure aluminum (62 % IACS International Annealed Copper Standard) and is about one third of that of pure copper, i.e. approximately 33 % IACS.

Typical uses

Due to its excellent corrosion resistance, the Peraluman 300, AlMg3 (AW5754, AA5754) is widely used in the chemical and food industry as well as for furnishing, aerospace and marine applications.

The thin precision strips or foils in Peraluman 300 produced at Lamineries MATTHEY are used for highly demanding applications in the watch or automotive industries for example.

Typical manufacturing range

		Thickness (mm)	Width (mm)	Length (mm)
Rolled products	Strip in coils ^[1]	0.010 - 2.000	1.5 - 200.0	-
	Strip as sheets ^[1]	0.010 - 1.500	10.0 - 200.0	100 - 3000

^[1] Not all our production possibilities are presented here. Other dimensions or product forms available upon request. Some combinations of thicknesses and widths are not possible.

Mechanical properties of strips

Temper			R _m (N/mm ²)	R _{p0.2} (N/mm ²)	A _{50mm} (%)	Hardness HV
R190	H45	annealed	190 - 250	60 - 160	8 min.	45 - 75
R300	H90	hard	300 - 380	200 min.	-	90 - 130

Physical properties

Modulus of elasticity	kN/mm ²	70.5
Poisson ratio		0.3
Density	g/cm ³	2.68
Melting point	°C	600
Linear dilatation coefficient	10 ⁻⁶ ./ °C	23.7
Thermal conductivity at 20°C	W/m °K	132
Electrical resistivity	μΩcm	5.305
Electrical conductivity	MS/m	18.85
Electrical conductivity	% IACS	32.5
Specific heat at 20°C	J/(kg.K)	897
Magnetic properties		Non magnetic

Tolerances (strip and foil)

Thickness	Thickness (mm)		EN Standard		Lamineries MATTHEY		
	≥	<	10140 Precision	10258 Precision	LMSA Standard	LMSA Precision	LMSA Extreme
<p>The table shown is an outline of our typical thickness tolerances available. They are tighter than industry standards.</p> <p>Our "LMSA Precision" and "LMSA Extreme" tolerances are available upon request.</p>	-	0.025	-	-	-	-	± 0.001
	0.025	0.050	-	-	± 0.003	± 0.002	± 0.0015
	0.050	0.065	-	± 0.003	± 0.003	± 0.0025	± 0.002
	0.065	0.100	-	± 0.004	± 0.004	± 0.0035	± 0.003
	0.100	0.125	± 0.005	± 0.006	± 0.005	± 0.004	± 0.003
	0.125	0.150	± 0.005	± 0.006	± 0.005	± 0.005	± 0.004
	0.150	0.250	± 0.010	± 0.008	± 0.008	± 0.006	± 0.004
	0.250	0.300	± 0.010	± 0.009	± 0.009	± 0.007	± 0.005
	0.300	0.400	± 0.010	± 0.010	± 0.010	± 0.007	± 0.005
	0.400	0.500	± 0.015	± 0.012	± 0.012	± 0.008	± 0.006
	0.500	0.600	± 0.015	± 0.014	± 0.014	± 0.010	± 0.007
	0.600	0.800	± 0.015	± 0.015	± 0.015	± 0.010	± 0.007
	0.800	1.000	± 0.015	± 0.018	± 0.018	± 0.012	± 0.009
	1.000	1.200	± 0.020	± 0.020	± 0.020	± 0.015	± 0.012
	1.200	1.250	± 0.020	± 0.020	± 0.020	± 0.015	± 0.012
1.250	1.500	± 0.020	± 0.020	± 0.020	± 0.015	± 0.014	
Width	Our width tolerances "Standard" is +0.2, -0.0 (or ± 0.1 mm upon request). They are available for slit widths < 125 mm and thicknesses < 1.00 mm. Special tolerances upon request.						
Camber	Width (mm)		Camber max. (mm/m)				
<p>Our tolerance "LMSA Standard" respects the EN Standard 1654 (Length of measurement 1000 mm). Other tolerances upon request.</p>			LMSA Standard		LMSA Extreme		
	>	≤	≤ 0.5 mm	> 0.5 mm	≤ 0.5 mm	> 0.5 mm	
	3	6	12	-	6	-	
	6	10	8	10	4	5	
	10	20	4	6	2	3	
20	250	2	3	1	1.5		
Surface	Special surface qualities upon request						
Flatness	Special requirement on the longitudinal or transversal flatness upon request						

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