

AlSi10Mg Aluminium

Good Thermal Properties

Low weight

A lightweight but strong aluminium alloy with very similar properties to 6082 - different heat treatments can be applied to affect conductivity and ductility.



Benefits

- High dynamic load bearing capacity
- Good strength and hardness
- Lightweight and heat-resistant

Applications

- Ideal for applications which require a combination of good thermal properties and low weight
- Typically used for cast parts with thin walls and complex capacity
- Automotive, aerospace and automation
- Housings, engine parts and production tools



Physical Properties

Colour	Grey
Type	Aluminium

Mechanical Properties

	Heat Treated	
	Horizontal	Vertical
Ultimate tensile strength, R_m	340 MPa	350 MPa
Yield strength, $R_{p0.2}$	220 MPa	225 MPa
Elongation at break, A	12%	9%
Density (g/cm ³)	2.59-2.65	
Hardness		
Hardness	119 ± 5 HBW	

¹ The numbers are typical values and are determined from samples with horizontal and vertical orientation.

² Tensile testing according to ISO 6892-1 B10, proportional test pieces, diameter of the neck area 5 mm (0.2 inch), original gauge length 25 mm (1 inch).

³ Stress relieve: anneal for 90 minutes at 270 °C (518 °F). Oven type & configuration may have impact on the mechanical properties: longer holding time and higher temperature can lead to decreased strength and increased elongation properties and vice versa. Values given in above table were obtained by inserting parts to preheated oven; annealing time calculation started when part temperature reached 6 °C below target temperature; maximum overheating was < 5 °C.

Material Composition

Component	Indicative Value (%)
Al	Balance
Si	9.0 – 11.0
Fe	0.55
Cu	0.05
Mn	0.45
Mg	0.25 – 0.45
Ni	0.05
Zn	0.10
Pb	0.05
Sn	0.05
Ti	0.15

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