

AM Material Datasheet - AlSi10Mg

POWDER CHARACTERISTIC

CHEMICAL COMPOSITION (In accordance with standard DIN EN 1706 (EN AC-43000))

Element	Min (%)	Max (%)
Al	Balance	
Si	9.0	11.0
Fe	0	0.55
Cu	0	0.05
Mn	0	0.45
Mg	0.25	0.45
Ni	0	0.05
Zn	0	0.10
Pb	0	0.05
Sn	0	0.05
Ti	0	0.15

PARTICLE SIZE

Weight Fraction	
>90 µm	0.3 wt.%

PHYSICAL PROPERTIES

(At 20°C)

Property	Unit	Value
Part density	g/cm ³	2.68

MECHANICAL PROPERTIES (50 µm layer) ¹

HEAT TREATED CONDITION (minimum values)

Property	Unit	Temperature	
		As manufactured ²	Stress relieved ³
Tensile strength, R _m	MPa	447	285
Yield strength, R _{p0.2}	MPa	241	184
Elongation at break, A	%	5	12
Young's modulus, E	GPa	85	80

ROUGHNESS MEASUREMENT⁴

Surface quality depends on orientation during printing and other process parameters, such as layer thickness. Listed values represent an indication of what can be expected. Improvement of surface roughness can be achieved based on customer requirements

As manufactured, vertical	Unit	As built
Ra	[µm]	11 - 20
Rz	[µm]	70 - 170

The material properties and mechanical characteristics reflect the current knowledge and experience at the time of publication and do not form a sufficient basis for component design and use on their own. Certain part properties are not guaranteed, and it is the responsibility of the user to qualify the properties and their suitability for specific applications.

[1] Tensile test according to DIN EN Iso 6892-1 Method B at room temperature, test samples were turned before the test; values for vertical specimen (Z direction)

[2] Properties are affected by system and parameters. This values offer an indication of mechanical properties.

[3] 300 °C for two hours, quenching in air

[4] Roughness measurement according to DIN ISO 13565 – 1/2