

AlSi10Mg

Inert gas atomized powder, sieved and processed under inert gas protection. The presented values relate to our standard size for Additive Manufacturing. Other size fractions are available upon request.



Chemical composition

Element	Min (%wt)	Max (%wt)
Al	Balance	
Si	9.0	11.0
Fe	0	0.55
Cu	0	0.05
Mn	0	0.45
Mg	0.25	0.45

Element	Min (%wt)	Max (%wt)
Ni	0	0.05
Zn	0	0.10
Pb	0	0.05
Sn	0	0.05
Ti	0	0.15

Particle size distribution (PSD)

Size fraction	Min	Max
D10	26	32
D50	40	45
D90	53	61

Values from Camsizer XT machine

Morphology

Property	Min	Max
Sphericity (SPHT3)	0.9	0.93
Roundness (RDNS)	0.68	0.73

Values from Camsizer XT machine

Density

Property	Unit	Value
Tap density (ISO 3953)	g/cm ³	1.6
Apparent density (ISO 3923-2)	g/cm ³	1.3
Printed material density	g/cm ³	2.68

Mechanical properties (50 µm layer thickness)¹

Property	Unit	As manufactured ²	Stress relieved ³
Tensile strength, Rm	MPa	447	285
Yield strength, Rp0.2	MPa	241	184
Elongation at break, A	%	5	12
Young's modulus, E	GPa	85	80

Roughness measurement⁴

Surface quality depends on the orientation during printing and other process parameters, such as the 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

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

[2] Properties are affected by the system and parameters. These 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

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.