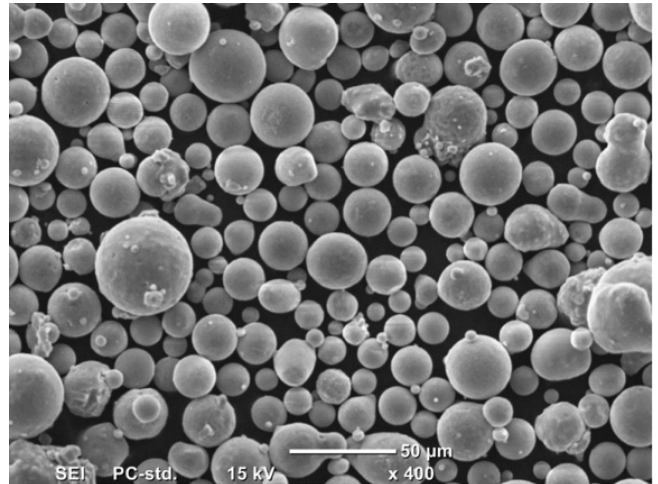


AM Material Datasheet - AlSi10Mg

POWDER CHARACTERISTICS

CHEMICAL COMPOSITION (DIN EN 1706 (EN AC-43000))

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
Ni	0	0.05
Zn	0	0.10
Pb	0	0.05
Sn	0	0.05
Ti	0	0.15



Gas atomised and sieved AlSi10Mg powder

PARTICLE SIZE DISTRIBUTION (PSD)¹

PSD Standard Values (µm)	
D10	26-32
D50	40-45
D90	53-61

Values from Camsizer XT machine

DENSITY

Tap density (ISO 3953)	
g/cm ³	1.6

Values from Camsizer XT machine

Apparent density (ISO 3923-2)	
g/cm ³	1.3

MORPHOLOGY

Property	Value
Sphericity (SPHT3)	0.9-0.93
Roundness (RDNS)	0.68-0.73

Values from Camsizer XT machine

[1] Custom PSD available on demand

PHYSICAL PROPERTIES OF THE PRINTED MATERIAL

(At 20°C)

Property	Unit	Value
Part density	g/cm ³	2.68

MECHANICAL PROPERTIES (50 µm layer)¹

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 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

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 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

Gränges Powder Metallurgy (GPM) is a global supplier of sprayformed aluminium products and aluminium powders for additive manufacturing, specialized in high-performance aluminium alloys. GPM has atomization capacity in France and it is a wholly owned subsidiary of the global aluminium technology Gränges.

