

L-PBF PROCESS

Layer thickness	120 µm
Laser power	1000 W
Theoretical build-up rate	152 cm ³ /h

POWDER MATERIAL

Aluminum (AlSi10Mg) is widely applied in the automotive and aerospace sector, due to its comparably high mechanical strength at very low specific density. With Equispheres AlSi10Mg powder and Aconity3D's high performance machines, highest build rates can be achieved with very high relative density (>99,5%) and excellent mechanical properties. Reduced process times up to 60% in comparison to our standard AlSi10Mg powder can be achieved.

PHYSICAL PROPERTIES

Particle Size	40 µm – 68 µm
Density	2,68 g/cm ³
Thermal conductivity	130-190 W/mK
Melting range	570 °C – 590 °C
Thermal expansion	20 x 10 ⁻⁶ K ⁻¹ – 21 x 10 ⁻⁶ K ⁻¹

CHEMICAL COMPOSITION

Element -	Mass fraction
Al	Balance
Si	9,0%-11,0%
Mg	0,20%-0,45%
Fe	<0,20%
Ti	<0,10%
Mn	<0,1%
Cu	<0,05%
Zn	<0,10%

MECHANICAL DATA

As built

Tensile strength	R _m	383 MPa ± 13 MPa
Yield strength	R _{p0,2}	225 MPa ± 6,0 MPa
Elongation at break	A	4,0% ± 1 %
Roughness average	Ra	12 µm – 14 µm

All values are subject to natural volatilities depending on applied powder material, process parameters and surrounding conditions.