



Aluminium AlSi10Mg

Features.

Parts produced by the DMLS \ SLM process in AlSi10Mg show a homogeneous and almost pore-free structure. The material is characterized by a very high stability, high hardness, and an excellent dynamic strength. Due to the high cooling rates during the construction process, the mechanical properties of the manufactured components are better than in the corresponding casting process.

The material is ideal for applications requiring a combination of good mechanical properties and low weight. The components can be heat-treated, machined, eroded, welded, micro-blasted, polished, and coated.

Heat Treatment.

It is possible to modify the mechanical properties of the manufactured components by applying T6 heat treatment. The elongation of the components will be improved. Further, the anisotropic properties are reduced as result of the layered structure.

Chemical Composition:

Al	Si	Mg	Fe	Cu	Mn	Ni, Zn, Pb, Ti	Sn
Base	9 - 11	0.25 - 0.5	≤ 0.55	≤ 0.08	≤ 0.55	≤ 0.15	≤ 0.05
Wt %							

Mechanical Properties:

Material Property	Unit	As Built	Heat Treated
Tensile Strength	MPa	410 ± 40	325 ± 20
Yield Strength (Rp 0.2%)	MPa	240 ± 40	220 ± 20
Elongation at Break	%	5 ± 2	9 ± 2
E-Modulus	GPa	65 ± 5	65 ± 5
Hardness (Din EN ISO 6506-1)	HBW	120 ± 5	/
Thermal Conductivity	% ICS	130-150	

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This data sheet contains approximate values. These values are influenced by part's geometry, additives, and environmental influences. They were developed based on current experiences and knowledge. Therefore, the above mentioned properties cannot be claimed legally binding nor can a definite purpose be derived.