

Material Data Sheet - AlSi10Mg

Material Description

AlSi10Mg is a widely used alloy, characterised by its high corrosion resistance, low density, and good casting properties compared to other alloys. It is typically used for parts with thin walls and complex geometries because it has good castability, weldability, hardenability, good static and dynamic resistance. Due to the fact that it offers high strength, hardness, and high thermal conductivity, it is also used for parts which are subject to high loads. Parts made by Airbus APWorks' AlSi10Mg are ideal for applications which require a combination of good thermal properties and low weight. Such parts can be either machined, spark eroded, welded, polished, coated, and/or micro shot peened as per the requirements.

General Properties

Properties	Values
Density (g/cm ³)	2.67
Typical tolerance (µm)	± 100
Smallest wall thickness (mm)	1.0
Surface roughness, as built (µm) *	Ra 10 / Rz 40 *

Mechanical Properties

Properties	Values
Young's Modulus (GPa)	65
Yield Strength (MPa)	200
Ultimate Tensile Strength (MPa)	335
Elongation at Break (%)	3
Hardness (HBW)	115

Values stated in the datasheet refer to the minimum properties that are reached using Additive Layer Manufacturing in the least strong direction of the material.

The values of the mechanical properties are generated from tests conducted at room temperature, according to DIN EN 2002-001 standards, from specimens that have been heat treated and machined.

* The surface roughness values depend on the measurement method used and the orientation of the surface. The values quoted here give an indication of what can be achieved for certain surfaces.