

Material Information



Aluminum Alloy AlSi10Mg

Introduction

Aluminum Alloy AlSi10Mg is the most widely used class of non-ferrous metal materials in the industry. This aluminum alloy is light-weighted, strong, and has a metallic color, and it can be 3D printed into various functional products and prototypes.

Advantages

Low density but relatively high strength which is close to or beyond high-quality aluminum processed with traditional manufacturing technology. Excellent electrical conductivity and corrosion resistance.

Disadvantages

Might have pitted surface, larger tolerance, might need post processing such as sand blasting and annealing to ensure better results.

Tolerance

±500µm or 0.5%

Recommendation

The outstanding material performance of Aluminum Alloy AlSi10Mg makes it suitable for engineering validation, design validation, and batch production of metal products with complicated structures that cannot be realized by traditional manufacturing processes.

Material Specifications		
Hardness	ISO 6597-1:03-2006	100 HV
Density	WGE-Prod-067EN	2.65 g/cm ³
Relative Density	WGE-Prod-067EN	99.0%
Tensile strength	DIN EN ISO 6892-1:2009	300 MPa
Elongation at Break	DIN EN ISO 6892-1:2009	2.00%
Yield Strength	DIN EN ISO 6892-1:2009	190 MPa
Elastic modulus	DIN EN ISO 6892-1:2009	70 GPa
Roughness Ra	ISO 4287 / AITM 1-00070	16 µm
Roughness Rz	ISO 4287 / AITM 1-00070	70 µm

Attention

Products printed with powdered metal material come with grainy/pitted surface. If you have a specific requirement on surface finishing, you may need to add 3D Plus services such as sandblasting and polishing to reach a smooth surface. 3DSPRO offers anodizing and electroplating for coloring as well.

Applications

3DSPRO find people using Aluminum Alloy AlSi10Mg to make functional parts and prototypes in the following industries & applications.

Automotive parts and supplies:

Car bezels, rearview mirrors, dashboards, steering wheels, lights, seats, handles, etc.

Consumer electronic products:

Laptops, tablets, mobile phones, digital cameras, game consoles, MP3, mobile power bank.

Electromechanical equipment:

Industrial display panels, switches, sockets, power tools, electrical instruments, experimental instruments, measuring tools, etc.

Consumer supplies:

Golf clubs, tennis rackets, bicycles, wristwatches, glasses, knives, jewelry, and sculptures.