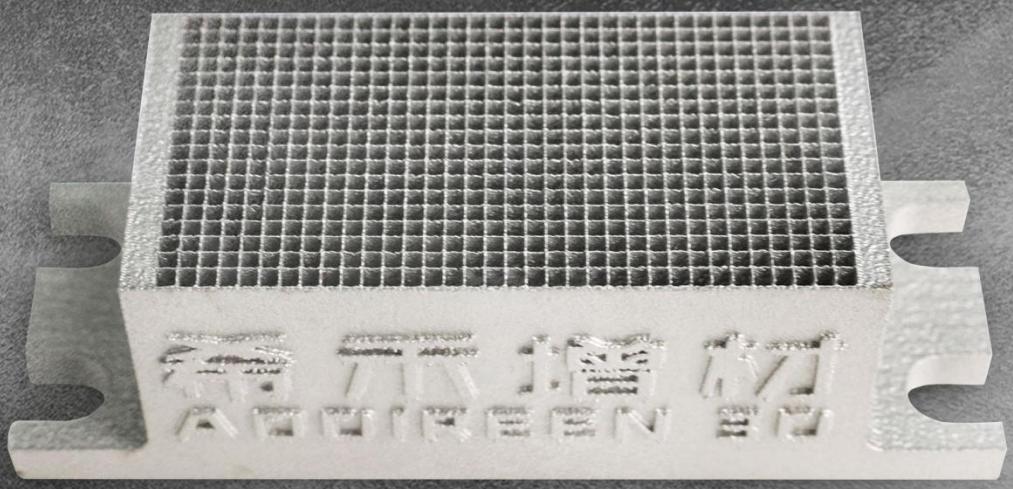
ADDIREEN

For a Greener Print

AlSi10Mg



Overview

Aluminum **AlSi10Mg** is a widely used aluminum-silicon-magnesium alloy for metal additive manufacturing, offering performance comparable to traditional cast and die-cast aluminum alloys.It features an excellent **strength-to-weight ratio**, good **thermal conductivity**, and strong corrosion resistance, making it suitable for both functional prototypes and end-use parts.

After appropriate heat treatment or stress relief, AlSi10Mg demonstrates reliable **fatigue performance, creep resistance**, and **dimensional stability**, making it a popular choice for lightweight structural components with complex geometries.

Highlights

- Lightweight
- High strength-to-weight ratio
- Good stiffness
- Large build volume compatibility
- Excellent dimensional stability

CHEMICAL COMPOSITION IN WT%

Item	Specification	
Essential Elements(wt%)	Al	Balance
	Si	9-11
Impurities(wt%)	Fe	≤0.55
	Cu	≤0.05
	Mn	≤0.45
	Mg	0.25-0.45
	Ni	≤0.05
	Zn	≤0.1
	Pb	≤0.05
	Sn	≤0.05
	Ti	≤0.15
Laser Partical Size Distribution(%)	D10(μm)	≤25
	D50(μm)	15-53
	D90(μm)	45-105

MATERIAL PARAMETERS

Partical Size	Specification	Apparent Density	Oxygen Content
15-53μm	⩽80s/50g	⩾1.35g/cm^3	⩽300ppm

TYPICAL PART PROPERTIES

Density(%)	Tensile Strength	Yield strength (σ0.2)	Elongation to Failure
⩾99.5%	～345MPa (50ksi)	~230MPa (33.4ksi)	~12%

Applications

Due to its low density, good mechanical strength, and excellent thermal and corrosion resistance, AlSi10Mg is commonly used in a wide range of industrial applications, including:

- Lightweight structural components
- Housings and enclosures
- Heat sinks and thermal management parts
- Automotive and motorsport components
- Aerospace brackets and non-critical structural parts