

# AlSi10Mg

Material Introduction



## Introduction

Aluminum alloy is the most widely used class of non-ferrous metal structure materials in the industry. Low density but relatively high strength which is close to or beyond high-quality steel and good plastic. With excellent electrical conductivity and corrosion resistance, this aluminum alloy can be processed into various profiles which makes it the industry's widely used material.

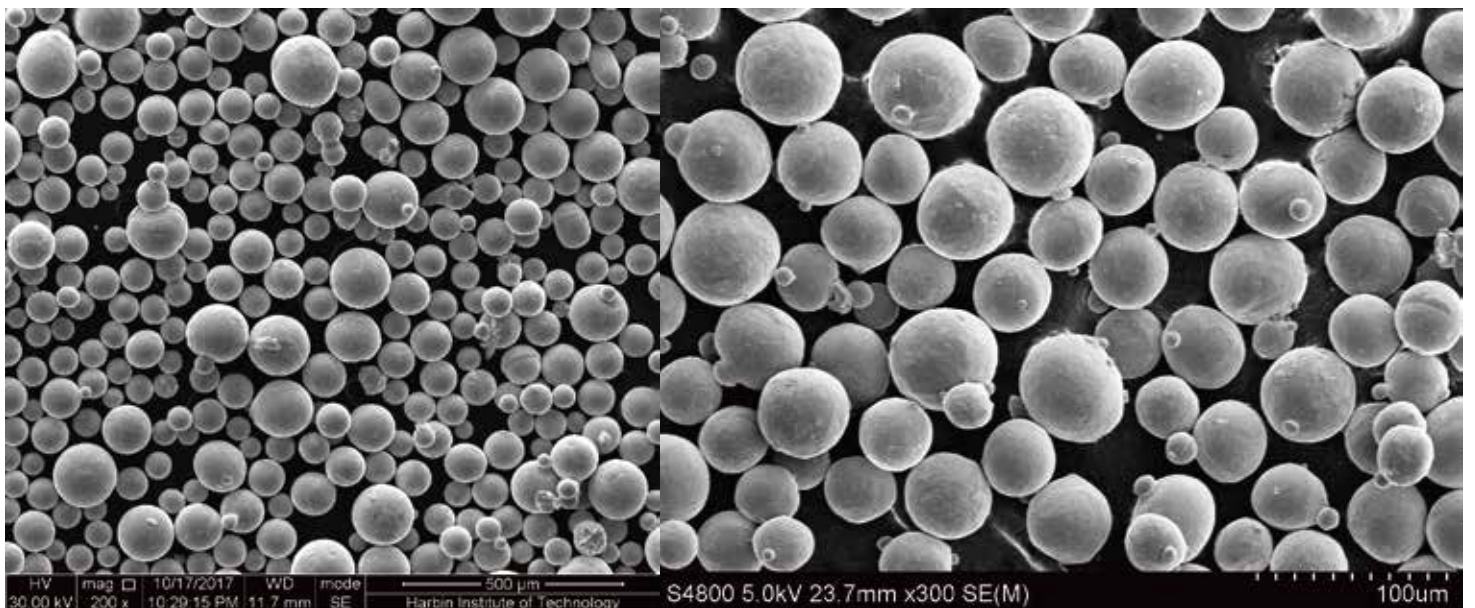
## Powder Chemical Composition (wt.%)

Element	Mg	Zn	Al	Ti
Content Range	0.2-0.5	≤0.02	Bal.	≤0.15

Element	Mn	Fe	other	Si
Content Range	≤0.40	≤0.25	≤0.15	9-11

## Powder EM Diagram (spherical degree of 0.9)



## Advantages

As metal material, this Aluminum alloy can reach low density, light weight, high strength, high thermal conductivity, excellent physical and mechanical properties.

## Disadvantages

Product's surface might be pitted, secondary processing is needed for high quality surface finish.

## Tolerance

200 μm or 0.2%

## Attributes

Performance	Printing State	Thermal Treatment State
Tensile Strength (Mpa)	430±30	350±50
Yield Strength (Mpa)	270±30	240±30
Hardness HRC/HV	140±20 HV5/15	75±20 HV5/15
Extensibility	3±1	6±1

Thermal Conductivity: 146W (m.k)

Specific Heat Capacity: 0.91KJ (kg.k)\*10<sup>-6</sup>

## Applications

- Lightweight designed products  
Complex structure parts, high rigidity lightweight parts.
- Merge parts/ Assembly parts  
Compact design for high reliability.
- Customization demands  
Medical, bionic structure, artistic practice.