

AlSi10Mg

Material Introduction



Introduction

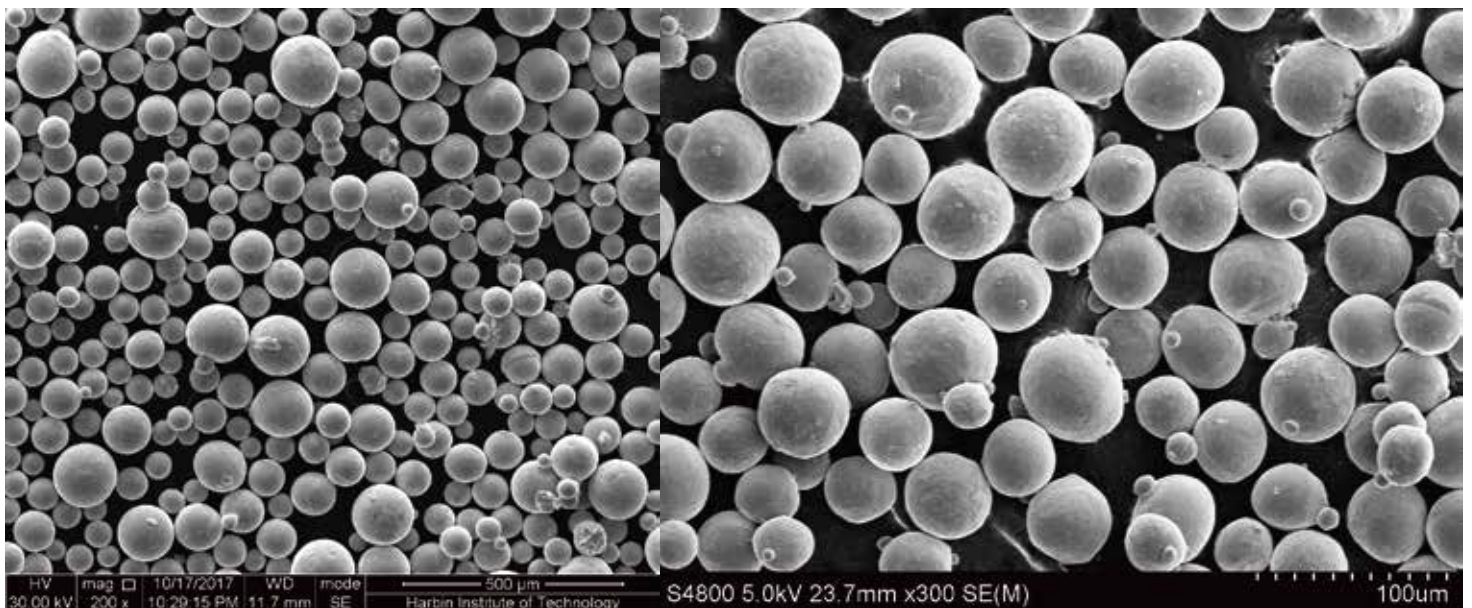
Aluminum alloy is the most widely used class of non-ferrous metal structure materials in the industry. Low density but relatively high strength which is close to or beyond high-quality steel and good plastic. With excellent electrical conductivity and corrosion resistance, this aluminum alloy can be 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 \pm 30	350 \pm 50
Yield Strength (Mpa)	270 \pm 30	240 \pm 30
Hardness HRC/HV	140 \pm 20 HV5/15	75 \pm 20 HV5/15
Extensibility	3 \pm 1	6 \pm 1

Thermal Conductivity: 146W (m.k)

Specific Heat Capacity: 0.91KJ (kg.k)*10⁻⁶

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.