Aluminum(6061)

INDUSTRIAL GRADE MATERIALS FOR SLM 3D PRINTING

MATERIAL NAME
Aluminum(6061)

COLOR
Silvery-gray

PROCESS
SLM

PRODUCT DESCRIPTION

Aluminum (6061) is a versatile alloy renowned for its balanced blend of strength, corrosion resistance, and formability. Because of its relatively low density and ease of machining, it finds widespread use in industries such as aerospace, construction, and automotive. This makes 6061 one of the most popular aluminum alloys globally, especially for applications demanding a reliable strength-to-weight ratio. Additionally, it delivers solid thermal and electrical conductivity, further enhancing its appeal for engineers and manufacturers looking to optimize efficiency without compromising performance.

TYPICAL APPLICATIONS

- Structural frames and fixtures
- Aerospace brackets and fittings
- Durable prototypes and end-use products
- Automotive chassis components
- Machine parts and tooling

PRODUCT SAFETY

If there are sharp edges on the surface of the parts, be careful not to scratch them. If there are metal powders on the parts, be careful not to inhale them into the lungs and avoid contact with strong acids and alkalis.

PRODUCT DELIVERY & WAREHOUSING

- **STORAGE**
  Store in a dry, ventilated environment, avoiding moisture and exposure to corrosive chemicals.
  Apply protective coatings to prevent oxidation or corrosion of metal surfaces.

- **USAGE AND HANDLING**
  Remove burrs and residual materials from the product. Use protective equipment like gloves when handling.
  Avoid using the product in extreme environments or high-load scenarios; regularly inspect for mechanical performance.

- **CHEMICAL COMPATIBILITY**
  Avoid contact with strong acids, alkalis, or corrosive solvents. Use appropriate cleaning and maintenance solutions.
  Assess risks of oxidation, corrosion, or magnetic effects based on specific application environments.

MATERIAL PROPERTIES

Formed Part Properties	Value
Hardness	90~95 HB
Yield Strength (Mpa)	≥ 230 Mpa
Tensile strength (Mpa)	≥ 280 Mpa
Elongation at break	≥ 8 Mpa
Heat-Treated Properties	**Value**
Hardness	95~120 HB
Yield Strength (Mpa)	≥250 Mpa
Tensile strength (Mpa)	≥290 Mpa
Elongation at break	≥14%
Elastic Modulus (Gpa)	70 GPa
Other Properties	**Value**
Poisson's Ratio	0.32-0.36
Coefficient of themal expension(/°C)	/
Thermal Conductivity	/
Electrical Resistivity	/
Electrical Conductivity	/
Surface Roughness of Formed Parts	RA 6.3~7

Tips: Want to explore a wider range of materials? Check out *https://www.unionfab.com/materials*