ALUMINUM ALLOY 6061

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OLA Product Name: Aluminum Alloy 6061

Color: Natural (As-printed)

Process: SLM

MATERIAL SUMMARY

Tolerance: ±200μm or ±0.2%

Lead Time: 7 days

Maximum Printing Size: 350mm × 400mm × 360mm

Notes:

EVALUATION

- **Advantages**
  ① Excellent machinability; easy to process and shape.
  ② Lightweight with low density; ideal for weight-sensitive applications.
  ③ Supports anodizing, electrophoresis, and other surface treatments for enhanced durability and appearance.
- **Disadvantages**
  ① Poor heat resistance; maximum service temperature is 120°C.
  ② Slight surface porosity and visible layer lines; typical surface roughness around Ra ~10 μm.

KEY FEATURES

Aluminum 6061 is a lightweight, high-strength alloy with excellent machinability, weldability, and corrosion resistance. It is one of the most popular aluminum materials for 3D printing, especially suitable for parts requiring good surface quality and mechanical performance.

As a heat-treatable alloy, 6061 maintains stable workability after annealing and offers balanced strength and formability, making it ideal for industrial-grade applications.

MATERIAL PROPERTIES

- Surface Roughness (Sandblasted): ≥7μm
- Hardness (as-printed): HRB 90±10
- Hardness (heat-treated): HRB 120±30
- Ultimate Tensile Strength (as-printed): 260±40 MPa
- Ultimate Tensile Strength (heat-treated): 300±20 MPa
- Yield Strength (as-printed): 202±40 MPa
- Yield Strength (heat-treated): 250±20 MPa
- Elongation at Break (as-printed): 14±5%
- Elongation at Break (heat-treated): 10±5%

APPLICATION SCENARIOS

- It is widely used in automotive, aerospace, mechanical engineering, and industrial structures that require medium strength and corrosion resistance—such as truck frames, towers, marine components, railway parts, and aerospace hardware.

POST-PROCESSING OPTIONS

- Thread tapping
- Sand-blasting