316L Stainless Steel

INDUSTRIAL GRADE MATERIALS FOR SLM 3D PRINTING

MATERIAL NAME
316L Stainless Steel

COLOR
Silvery-gray

PROCESS
SLM

PRODUCT DESCRIPTION

316L Stainless Steel is one of the most popular stainless steel grades used in 3D printing. This material has better mechanical properties thanks to the high-temperature gradient and fast solidification rate, though some printers can print with 17-4 PH as well. 316L Steel is a robust metal with a rough, pitted surface. 316L Steel is available in a variety of polished and matte finishes and is good for a wide range of applications, including jewellery, functional parts, and small sculptures.

TYPICAL APPLICATIONS

- Functional prototypes and end products
- Moving and assembled parts
- Cases, holders and adapters
- Form and fit testing
- Functional prototyping and testing

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

Heat-Treated Properties	Value
Hardness	28 HRC
Yield Strength (Mpa)	400 Mpa
Tensile strength (Mpa)	600 Mpa
Elongation at break	≥32%
Elastic Modulus (Gpa)	180 GPa
Other Properties	**Value**
Poisson's Ratio	/
Coefficient of themal expension(/°C)	/
Thermal Conductivity	15.1 $W \cdot m^{-1} \cdot K^{-1}$
Electrical Resistivity	0.73 Ω·m
Electrical Conductivity	/
Surface Roughness of Formed Parts	/

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