

Material Information



18Ni300 Maraging Steel

Introduction

Maraging steel 18Ni300 is compatible with selective laser melting. 18Ni300 maraging steel is mainly composed of nickel (about 18%), cobalt, molybdenum and titanium.

Advantages

SLM 3D printed 18Ni300 maraging steel offers excellent mechanical properties, including increased hardness, strength, and wear resistance, while enabling the creation of complex, custom designs with minimal material waste.

Disadvantages

May suffer from high porosity, high surface roughness, and reduced corrosion resistance due to irregular pores and defects.

Tolerance

±300µm or 0.3%

Recommendation

Recommended for high-performance applications such as injection molds, aerospace components, and tooling, where its superior mechanical properties and ability to produce complex geometries are highly beneficial.

Material Specifications		
Hardness	ASTM E18	35 HRC
Relative Density	ASTM B923	99.5%
Density	ASTM B923	8.1 g/cm ³
Tensile Strength	ASTM E8	1100MPa
Yield Strength	ASTM E8	1050MPa
Elongation at Break	ASTM E8	10%
Modulus of Elasticity	ASTM E2769	160GPa

Attention

Products printed with powdered metal material come with grainy/pitted surfaces. All metal products supplied by 3DSPRO will be sandblasted for better results. If you have a specific requirement for surface finishing, you may need to add 3D Plus™ services, such as polishing, to reach a smooth surface. 3DSPRO offers anodizing and electroplating for coloring as well.

Applications

3DSPRO finds people using 18Ni300 maraging steel to make functional parts and prototypes in the following industries & applications.

Aerospace:

Used to manufacture complex parts such as engine hanger hinge brackets, heat exchangers and metal brackets, improving performance and reducing weight.

Automotive:

Ideal for producing high-strength, wear-resistant injection molds and customized parts, improving durability and performance.

Energy:

Used to manufacture strong, high-performance components for turbines and other energy systems, benefiting from its strength and wear resistance.

Medical:

Used to manufacture surgical instruments and orthopedic implants due to its high strength and biocompatibility.

Tools:

Ideal for producing high-precision, wear-resistant tools and molds, improving the efficiency and service life of manufacturing processes.