

Material Information



17-4 PH Stainless Steel

Introduction

17-4 PH Stainless Steel is a multi-purpose metal material used in many industries. It has high strength and high hardness, making it ideal for all kinds of general metal applications. It is also good for specialized industries such as tooling, aerospace, petrochemicals, etc. It can be 3D printed and heat treated into various functional end products and prototypes.

Advantages

High strength and hardness, good corrosion resistance, excellent mechanical properties at elevated temperatures, and good thermal properties.

Disadvantages

More expensive. Relatively heavier compared to other metal 3D printing materials.

Tolerance

±300µm or 0.3%

Recommendation

17-4 PH stainless steel is widely used for prototypes, spare parts, and functional parts. We see innovators adapting it in different industries, especially for specialized applications such as turbine blades, pumps, and valves.

Material Specifications		
Hardness	ASTM E18	38 HRC
Relative Density	ASTM B923	96.4%
Tensile Strength	ASTM E8	1230MPa
Tensile Modulus	ASTM E8	170GPa
Elongation at Break	ASTM E8	13%
Yield Strength	ASTM E8	1050MPa
Corrosion	ASTM F1089	PASS

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 17-4 PH stainless steel to make functional parts and prototypes in the following industries and applications.

Aerospace:

Turbine blades, wrenches & sockets, motor shafts, gear, valve system, etc.

General industrial machinery:

Fasteners, couplings, rocket hold-downs, wear rings, balls, rollers, load cells and screws, helicopter deck platforms, conveyor belts, etc.

Energy and petrochemicals:

Pump shafts, hydraulic actuators, foils, oil platforms, downhole equipment, pressure vessels, etc.