Titanium Ti_6Al_4V Datasheet

Overview

Titanium Ti_6Al_4V is known for its outstanding tensile strength and toughness, making it one of the lightest metals used in 3D printing. Its exceptional corrosion resistance and ability to endure extremely high temperatures without losing performance make it a highly versatile material in various applications.

As-printed Part's Tolerance: ±300μm or 0.3%

Maximum Printing Size: 420*420*450mm

Properties

Dense Properties	Metric	Method
Density	4.39 g/cm^3	WGE-Prod-067EN
Relative Density	99.5%	WGE-Prod-067EN
Mechanical Properties	**Metric**	**Method**
Tensile Strength	980MPa	DIN EN ISO 6892-1:2009
Yield Strength	900MPa	DIN EN ISO 6892-1:2009
Elongation at Break	14%	DIN EN ISO 6892-1:2009
Elastic Modulus	110GPa	DIN EN ISO 6892-1:2009
Hardness	340 HV	ISO 6597-1:03-2006
Surface Properties	**Metric**	**Method**
Roughness Ra	20 μm	ISO 4287 / AITM 1-00070
Roughness Rz	80 μm	ISO 4287 / AITM 1-00070

Pros

Titanium Ti_6Al_4V has excellent corrosion and fatigue resistance, along with strong high-temperature performance and a high strength-to-weight ratio. Additionally, it is biocompatible, making it a top choice for prototypes, spare parts, and functional components like heat exchangers, aircraft parts, naval vessels, and even spacecraft.

Cons

It comes with a high cost and can be challenging to weld or reshape. While it is possible to 3D print complex structures with titanium alloy powder, the material's hardness and strength can make post-processing difficult.

Applications

Automotive parts and supplies Airframes Engine Components

Surgical Instruments and Implants Turbine Blades Landing Gears

Consumer Supplies Aerospace Mechanical Parts Suspension Parts