

Inconel 718 Datasheet



Overview

Inconel 718 is a high-performance alloy known for its exceptional strength, corrosion resistance, and ability to withstand extreme temperatures. Ideal for applications in aerospace, automotive, and industrial sectors, it delivers outstanding durability and reliability in high-stress environments.

As-printed Part's Tolerance: $\pm 300\mu\text{m}$ or 0.3%

Maximum Printing Size: 280*280*350mm

Properties

Dense Properties	Metric	Method
Density	8.15 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	700MPa	DIN EN ISO 6892-1:2009
Elongation at Break	13%	DIN EN ISO 6892-1:2009
Elastic modulus	200GPa	DIN EN ISO 6892-1:2009
Hardness	300 HV	ISO 6597-1:03-2006
Surface Properties	Metric	Method
Roughness Ra	15 µm	ISO 4287 / AITM 1-00070
Roughness Rz	60 µm	ISO 4287 / AITM 1-00070

Pros

Inconel 718 is a high-performance alloy offering exceptional strength, heat resistance, and corrosion resistance. It excels in extreme environments, with superior fatigue resistance and the ability to withstand high temperatures without compromising integrity.

Cons

Its high cost makes it significantly more expensive than other materials. Additionally, parts printed with Inconel 718 often need extensive post-processing, such as heat treatment and machining, to achieve the desired finish and properties.

Applications

Automotive Parts and Supplies

Wrenches and Sockets

Pump Shafts

Mixers and Blenders

Mechanical Seals

Gas Turbines

Jigs and Fixtures

Enclosures and Housings

Load Cells and Screws