

Inconel 718

SPECIFICATIONS

EU NiCr19Fe19Nb5Mo

USA N07718

MATERIAL DESCRIPTION

- Nickel-based alloy, hardening γ/γ' with good resistance to oxidation and having high mechanical properties up to 650°C.

COMPOSITION

weight %

Ni	Balance
Cr	17
Fe	12
Nb	2
Mo	1,5
Ti	0,03
Al	0,5

APPLICATIONS



MATERIAL SHEET

Typical mechanical properties

The data provided in this document represent typical but not guaranteed values.

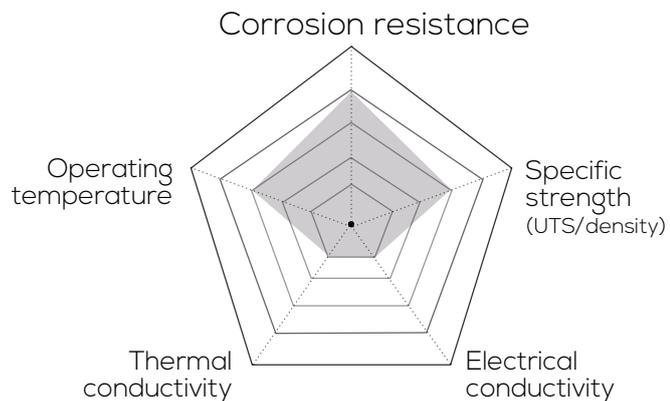
	Stress-relieved	Heat treated*
Ultimate Tensile Strength UTS, MPa	1380	1450
Yield Strength YS, MPa	1200	1300
Elongation at break E 5D, %	16	16

* Heat treatment: 1095°C/2h + 720°C/8h + 620°C/8h.

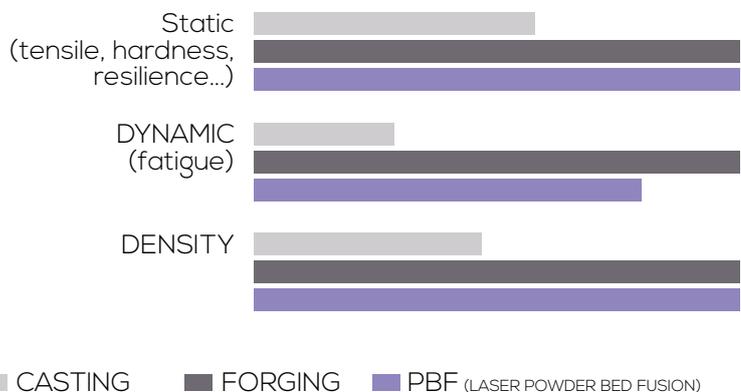
The mechanical characteristics along the Z axis are lowered by about 100 MPa after manufacturing.

The anisotropy is significantly reduced, if not eliminated, after heat treatment.

Physical properties:



Qualitative comparison according to processes



Technical data

PARTICULES SIZE :

Available in different granulometries.

SUPPLIERS :

AddUp will provide support with your choice of powder supplier.

Applications, in detail



AUTOMOTIVE

Exhaust manifold

To reach high performances, engines need to improve its maximal operating temperature as well as geometric and mechanical characteristics.

Inconel 718 helps designers to reach those goals.



AERONAUTIC

Disc

Ni-based alloy Inconel 718 is a commonly used grade for high temperature applications.

Typically, its operating range is between 650°C to 700°C where its high yield strength combined with a good creep vs. fatigue resistance ratio allows for an extremely versatile alloy suitable for a variety of applications.



POWER GENERATION

Fastener, heat exchanger

Parts with complex shapes (i.e. heat exchangers) require a good degree of weldability.

Moreover, to improve the overall dimensional requirements of these parts at elevated temperatures, high mechanical characteristics are required. In these cases, Inconel 718 is a great candidate for these applications.