



Inconel 718

Alternative Designations

Alloy 718

Key Features

High strength • Good machinability • Resistant to corrosion

Description

This is a nickel-chromium-based high-strength super alloy. It is resistant to corrosion, extreme pressure, and elevated temperatures of up to 700°C. It has a tensile strength of 1375 MPa. However, it is brittle and difficult to weld but has good machinability with a hard cutting tool. It is widely applied in manufacturing, military equipment, and the aerospace industry.

Mechanical Properties

Yield strength	1100 MPa
Tensile strength	1375 MPa
Elongation at break	25%
Hardness	266
Module of elasticity	200 GPa

Chemical Composition

Al	0.2 – 0.8%	N	-
Bi	-	Nb	4.75 – 5.5%
C	0.08%	Ni	50 – 55%
Cd	-	O	-
Co	1%	P	0.015%
Cr	17 – 21%	Pb	-
Cu	0.3%	S	0.015%
Fe	17%	Si	0.35%
H	-	Sn	-
M	2.8 – 3.3%	Ti	0.65 – 1.15%
Mn	0.35%	V	-
Mo	2.8 – 3.3%	Zn	-

Physical Properties

Density	8.192 g/cm ³
Electrical conductivity	1.38 m/Ω · mm ²
Coefficient of thermal expansion	12 K ⁻¹ · 10 ⁻⁶
Thermal conductivity	11.4 W/m · K
Specific heat capacity	435 J/kg · K

Reference

Datasheets provided by Xometry contain materials sourced through trusted OEMs, material distributors, and databases. Please visit Materialdatacenter.com for further information on this material.