

INCONEL® 718 Nickel Alloy

INCONEL® 718 NICKEL ALLOY DATASHEET

INCONEL® 718 Nickel Alloy is a precipitation hardenable corrosion and heat-resistant nickel alloy available in bars, forgings, sheets and plates. AMS 5662 and AMS 5663 limit sizes 10" and less between parallel sides with maximum cross-section area of 78 in² for bars and finished forgings. It is a multiple melted alloy including VIM and/or VAR processes. INCONEL 718 Nickel Alloy has high strength and creep rupture properties up from cryogenic temperatures to 1300° F, along with corrosion resistance and weldability with resistance to cracking. INCONEL 718 Nickel Alloy has good resistance to oxidation and corrosion at temperatures and atmospheres in jet engine and gas turbine operations. It is also corrosion resistant to acids, sea water and sour oil and/or gas.

Common industry/applications for INCONEL 718 Nickel Alloy include: Aerospace, Rockets and Spacecraft, Oil and Gas, and Fasteners.

Product forms include round bar, plate & strip, and forgings.



Standards

- UNS N07718

Physical Properties

- Density: 0.290LB/in³ (8.19g/cm³)
- Melting Point: 2300–2437°F (1260–1336°C)
- Modulus of Elasticity: 29.7x10⁶psi (205 GPa)

Characteristics

- Good corrosion and heat resistance.
- Good creep (stress) rupture strength.
- Improved transverse strengths.

Chemical Composition

	C	Mn	S	P	Si	Mo	Ti	Al	Cu	Cr	Ni *	Co
MIN	-	-	-	-	-	2.80	0.65	0.20	-	17.00	50.00	-
MAX	0.08	0.35	0.015	0.015	0.35	3.30	1.15	0.80	0.30	21.00	55.00	0.30

* Niobium (aka Columbium) + Tantalum (Nb+Ta) = 4.75-5.50

Ni + Co to meet requirements of Ni content.

Mechanical Properties

Size inches	Orientation	Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) %	Hardness HRC (BHN)
≤ 10	Longitudinal	185 (1275)	150 (1034)	12%	15%	
< 5	Long Transverse	180 (1241)	150 (1034)	10%	12%	
5 to ≤ 10	Long Transverse	180 (1241)	145 (1000)	10%	12%	
≤ 5	Transverse	180 (1241)	150 (1034)	6%	8%	
5 to ≤ 10	Transverse	180 (1241)	145 (1000)	6%	8%	

Orientation per Diameter or Least Distance between Parallel Sides.

Mechanical properties are typical and may not be reported when unless specified by order / specification.

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