

INCONEL® 718 Nickel Alloy

INCONEL® 718 NICKEL ALLOY DATASHEET

INCONEL® 718 is a nickel alloy. The material in the Annealed (per AMS 5662) condition can also be heat treated (per AMS5663), to increase strength and stress rupture (up to 1300°F), while maintaining good corrosion and heat resistance and weldability. 718 has is suitable for use in many environments and applications as it has good resistance to both alkaline and acid. 718 has good resistance to oxidation at temperatures seen in jet engine or gas turbines.

Can be used in various industry/applications based on the desired condition and application use. Common industry/applications are: Aerospace, Rockets and Spacecraft, Oil and Gas and Fasteners.

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

Standards

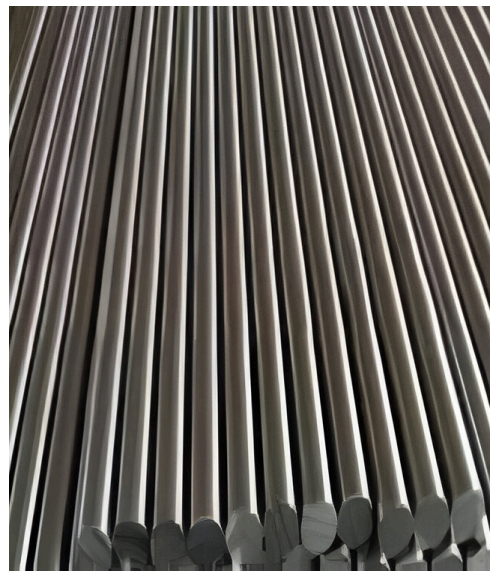
- UNS N07718
- AMS 5663
- ASTM B637
- AMS 5662

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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