

# INCONEL® 718 NACE Nickel Alloy

## INCONEL® 718 NACE NICKEL ALLOY DATASHEET

INCONEL® 718 NACE nickel alloy is a variant of the 718 nickel alloy. It is produced with a modified chemical composition and which has been age-hardened. It is produced specifically in a way to ensure it meets the maximum hardness requirements of NACE MR0175 for use in sour gas H<sub>2</sub>S service. INCONEL 718 NACE nickel alloy has good corrosion resistance and weldability, combined with high strength while having lighter tolerances on the hardness. Properties are typical and are not required to be reported in the Annealed condition. Typically, 440C is purchased in an annealed condition and then machined prior to heat treating as material can be hardened to 50-60HRC. INCONEL 718 NACE nickel alloy can be used in various industry/applications based on the desired condition and application use.

Common industry/applications for INCONEL 718 NACE nickel alloy are: Sour Gas, Oil and Gas, Aerospace, Rockets and Spacecraft, and Fasteners.

Product forms include round bar and forgings.



### Standards

- UNS N07718

### Physical Properties

- Density: 0.297LB/in<sup>3</sup> (8.22g/cm<sup>3</sup>)
- Melting Point: 2160–2440°F (1182–1337°C)
- Modulus of Elasticity: 29.0x10<sup>6</sup>psi (200 GPa)

### Characteristics

- Good corrosion and heat resistance.
- Suitable for use Good corrosion resistance.
- Capable of various Quench & Tempers.

### Chemical Composition

	C	Mn	S	P	Si	Mo	Ti	Al	Cu	Cr	Ni *	Co
MIN	-	-	-	-	-	2.80	0.80	0.40	-	17.00	50.00	-
MAX	0.045	0.35	0.01	0.01	0.35	3.30	1.15	0.60	0.23	21.00	55.00	1.00

\* Niobium (aka Columbium) + Tantalum (Nb+Ta) = 4.87-5.20

Other: Pb: 1000ppm, Se: 0.0005ppm, Bi: 50ppm & Mg: 0.0006ppm

### Mechanical Properties

	Tensile KSI (Mpa)	Yield KSI (Mpa)	Elongation %	Reduction of Area % *	Hardness HRC (BHN)
MIN	150 (1034)	120 (827)	20%	35/25	32 (298)
MAX	-	145 (1000)	20%	35/25	40 (363)

\* RoA Values: ≤10" diameter / >10" diameter

Size in (mm)	Orientation	Temp °F (°C)	Min Avg Ft-Lbs (J)	Min Single Ft-Lbs (J)	Lateral Expansion in (mm)
<3 (76)	Longitudinal	-75 (-60)	50 (68)	45 (61)	0.015 (0.38)
≥3 (76) - ≤10 (254)	Transverse	-75 (-60)	35 (47)	30 (41)	0.015 (0.38)
>10 (254)	Transverse	-75 (-60)	30 (41)	27 (37)	0.015 (0.38)

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