



E STEEL SDN BHD (891338-A)

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Inconel Alloy 718, UNS N07718, 2.4668

Alloy 718 nickel bar is a precipitation-hardening nickel-chromium alloy containing significant amounts of iron, columbium, and molybdenum, along with lesser amounts of aluminum and titanium. 718 nickel bar maintains high strength and good ductility up to 1300°F (704°C). This nickel bar alloy has relatively good weldability, formability, and excellent cryogenic properties compared to other precipitation hardening nickel alloys. The sluggish precipitation hardening response of this alloy allows it to be readily welded without hardening or cracking.

Properties of Alloy 718

Non-magnetic. Good corrosion resistance and oxidation resistance in jet engine and gas turbine applications. This alloy is used for parts requiring high resistance to creep and stress rupture up to 1300°F (704°C) and oxidation resistance up to 1800°F (982°C). Alloy 718 exhibits excellent tensile and impact properties even at cryogenic temperatures. AMS 5662 requires minimum yield strength of 150,000 psi at room temperature.

Chemical Composition, %

| Ni + Co | Fe | Mo | Si | C | Cb + Ta | S | Mn |
|---------|---------|-------------|------------|----------|------------|-----------|----------|
| 50 - 55 | Balance | 2.8 - 3.3 | 0.35 max | 0.08 max | 4.75 + 5.5 | 0.015 max | 0.35 max |
| Cr | Co | Ti | Al | | | | |
| 17 - 21 | 1.0 max | 0.65 - 1.15 | 0.35 - 0.8 | | | | |

Mechanical Properties

| Condition | Solution Annealed | Hot Worked |
|-----------------------------|-------------------|------------|
| Tensile Strength (Mpa) | 1343 | 1372 |
| 0.2% Yield Strength (Mpa) | 1176 | 1225 |
| Elongation (%) | 17 | 16 |
| Hardness (HB) | 382 | 393 |