718 Bar
UNS N07718

AMS 5662

Description
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. This alloy maintains high strength and good ductility up to 1300°F (704°C). Alloy 718 nickel bar has relatively good weldability, formability

Nominal Composistion
- Nickel - 52%
- Chromium - 19%
- Iron - 18%
- Columbium - 5%
- Molybdenum - 3%
- Titanium - 1%

Standard Inventory Specifications
- AMS 5662
- AMS 5663 (Capable of)
- B50TF15
- UNS N07718
- EN 2.4668
- PWA LCS
- GE S400/S1000
- Rolls Royce Sabre 9000
- ASME SB 637
- ASTM B 637
- Line marked >.500 inch diameter

Predominately produced by VIM-VAR melt method. Hot worked, solution treated (annealed), then centerless ground or rough turned.
- DFARS compliant

Common Trade Names
- Nickel 718, Alloy 718, Inconel® 718, Inco® 718

Industry Applications
Aerospace
Power Generation
Oil & Gas
Fasteners
Standard Inventory Lengths: 10-12 feet rl's

Properties
Non-magnetic. Good corrosion resistance and oxidation resistance in jet engine and gas turbine applications. Alloy 718 nickel round bar 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). This alloy is nickel based and exhibits excellent tensile and impact properties even at cryogenic temperatures. Alloy 718 nickel round bar requires a minimum yield strength of 150,000 psi at room temperature.

Hardness
Hardness of Aerodyne Alloys stock is typically 225 BHN and a maximum of 277 BHN by specification. Classified as a precipitation-hardening alloy that can be age hardened by heat treatment. Grain structure remains austenitic at all temperatures. Various solution and aging treatments are used during heat treatment of this grade to optimize either short or long time elevated temperature mechanical properties.

Machinability
Rating: 12% of B-1112
Typical stock removal rate: 20 surface feet/minute with high-speed tools, 80 surface feet/minute with carbide.

COMMENTS:
Carbide tooling preferred for turning operations, but high speed steel preferred for milling (to avoid tooth chipping). Use relatively heavy cuts and low speeds to minimize surface work hardening. Roughing cuts are usually made before hardening, finishing cuts after hardening. Allow a contraction due to hardening of about 0.001 inch per inch of the workpiece dimensions.
Density: 0.297 lbs/in3, 8.22 g/cm3

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