

Nickel Alloys

Alloy 718 Bar & Forgings

Datasheet Updated
05 August 2021

SPECIFICATIONS

Commercial

Alloy 718

A precipitation-hardenable nickel chromium grade with extremely high strength.

CHEMICAL COMPOSITION

ASTM B637-18 UNS N07718

Alloy 718

Element	% Present
Nickel (Ni)	50.00 - 55.00
Chromium (Cr)	17.00 - 21.00
Molybdenum (Mo)	2.80 - 3.30
Copper (Cu)	0.00 - 0.30
Aluminium (Al)	0.20 - 0.80
Boron (B)	0.00 - 0.01
Carbon (C)	0.00 - 0.08
Cobalt (Co)	0.00 - 1.00
Manganese (Mn)	0.00 - 0.35
Phosphorous (P)	0.00 - 0.02
Sulphur (S)	0.00 - 0.02
Titanium (Ti)	0.65 - 1.15
Silicon (Si)	0.00 - 0.35
Iron (Fe)	Balance

ALLOY DESIGNATIONS

- ASTM B637-18 UNS N07718
- NACE MR0175/ISO 15156-3/API6A

SUPPLIED FORMS

- Bar
- Forgings
- Rod

APPLICATIONS

- Components for offshore drilling equipment
- Pump shafts
- Specialist valves
- Choke stems
- Fasteners
- Gas turbine engine parts
- Liquid fuel rocket motor components
- Springs, fasteners
- Cryogenic tanks
- Tooling
- Aerospace components
- Nuclear plant containment vessels
- Wellhead components

CHARACTERISTICS

- Good processing properties in the solution annealed condition
- Good strength/ductility properties from sub-zero temperatures to over 750°C
- Good mechanical short and long-term properties, and excellent fatigue strength in the age hardened condition
- Excellent mechanical properties at low temperatures
- Excellent resistance to stress corrosion cracking and pitting in chloride-containing media
- Excellent resistance to stress corrosion cracking and sulphide stress cracking in sour (H₂S-containing) oilfield environments
- Non-magnetic and spark resistant
- Excellent creep-rupture strength at temperatures up to 700°C (1300°F)
- Outstanding weldability

MECHANICAL PROPERTIES

ASTM B637-18 UNS N07718

Rod & Bar - Solution Annealed & Hardened

Property	Value
Proof Stress	1034 Min MPa
Tensile Strength	1275 Min MPa
Elongation A50 mm	12 Min %
Hardness Brinell	331 Min HB
Hardness Rockwell C	36 Min HRC

DISCLAIMER

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