voestalpine
ONE STEP AHEAD.

Nickel Alloy 718 / 2.4668 / UNS N07718

Nickel Alloy 718 – High-Performance Nickel Alloy for Extreme Temperatures and Heavy Loads Properties of Alloy 718

Properties of Alloy 718

Nickel Alloy 718 is a precipitation-hardenable, high-temperature resistant nickel-based alloy with exceptional heat resistance and high-temperature tensile strength up to 750°C. The alloy also exhibits excellent creep resistance up to 700°C.

Alloy 718 offers excellent strength at elevated temperatures, making it particularly suitable for heavily loaded components in extreme environments. Its composition, which includes nickel, chromium, and molybdenum, ensures outstanding corrosion and oxidation resistance, even in aggressive media.

The material is available in cold- and hot-formed conditions. It exhibits a great forgeability and can be welded.

Applications of Alloy 718

Alloy 718 is available in three main specification ranges tailored to specific industries:

Alloy 718 according to AMS – for applications under high mechanical loads at elevated temperatures:

- Gas turbines
- Aircraft engines
- Nuclear reactors

Alloy 718 according to API – various components for the oil and gas industry in corrosive environments, such as sour gas:

- Completion tools
- Tubing hangers
- Pumps
- Valves

On request, the material is available at a yield strength~~s~~ up to 150 ksi (1034 MPa).

Alloy 718 according to ASTM – for demanding industrial applications requiring maximum strength and durability:

- Extrusion tools for copper and copper alloys
- Metal cutting knives

Why choose Alloy 718 from voestalpine Specialty Metals?

- Top quality and purity through advanced metallurgy
- Tailor-made solutions for aerospace, energy, and oil & gas industries in compliance with different customer specifications.
- Material availability from stock and mill.

Specification Overview

Material number	2.4668
Alloy	718
EN designation	NiCr19Fe19Nb5M o3
UNS	UNS N07718
Böhler designation	L718
Standard	Sheet: ASTM B670 Bar: ASTM B637/ ASME Sect.II Part B-SB637 AMS 5662 (solution annealed) / AMS 5663 (aged) API 6ACRA, DIN EN 17744 / 17750 (sheet and plates) DIN EN 17744 / 17752 (bars)

Physical Properties

Material Density	8.2 g/ccm
Permeability	718

Mechanical Properties:

Rp0.2	1034 N/mm^2 (ASTM B637 / AMS 5663)
Rm	1275 N/mm^2 (ASTM B637 / AMS 5663)

Typical Chemical Composition (weight %):

C	Si	Mn	P	S	Cr
max. 0.045	max. 0.35	max. 0.35	max. 0.010	max. 0.010	17.0 to 21.0
Mo	Ni	Cu	Co	Ti	Al
2.80 to 3.30	50.0 to 55.0	max. 0.23	max. 1.00	0.80 to 1.15	0.40 to 0.60
Nb	B	Fe	Pb	Bi	Ca
4.87 to 5.20	max. 0.0060	REM	max. 0.0010	max. 0.00005	max. 0.0030
Mg	Se				
max. 0.0060	max. 0.0005				

Typical Stock Size Range:

Bars (diameter in mm)

12.70 / 16.00 /19.05 / 25.40 / 31.75 / 40.00 / 44.45 / 50.80

60.00 / 70.00 / 80.00 / 90.00 / 101.60 / 120.00 / 130.00 / 140.00

152.00 / 180.00 / 203.20

Wst.Nr. 2.4668 / Alloy 718

AMS 5662, capable of AMS 5663

ASTM B637 / ASME Sec.II PartB-SB-637 UNS N07718

Inspection certificate: EN10204 3.1

Plates and Sheets (thickness in mm)

1.50 / 2.00 / 2.50 / 3.20 / 4.00 / 5.00 / 6.35 / 10.00

12.00 / 16.00 / 20.00

Wst.No. 2.4668 / Alloy 718

AMS 5596, ASTM B670 UNS N07718

Inspection certificate: EN10204 3.1

Other dimensions on request. Factory quantities also possible. All information without guarantee and for informational purposes only.