

Technical datasheet

Alloy 718 | 2.4668 | AMS 5662 | AMS 5663

Major specifications

UNS N07718	ASTM B637	DMD 0424-22				
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Available product forms

Round bars in AMS 5662 | AMS 5663

The current stock range can be found on www.sd-metals.com. Further dimensions available upon request.

Use our Service Centre to have the available sizes cut to your desired dimensions.

Key features

Alloy 718 is a precipitation hardened nickel-chromium alloy with additions of niobium, molybdenum, aluminium and titanium for improved corrosion resistance combined with extremely high strength and excellent weldability. For aerospace applications Alloy 718 | AMS 5662 | AMS 5663 has excellent creep rupture strength at temperatures up to 700 °C. Alloy 718 achieves its strength through a precipitation hardening heat treatment and can be supplied in the annealed condition (AMS 5662) for ease of fabrication, requiring later heat treatment to develop full strength, or in the fully precipitation strengthened condition (AMS 5663).

Though originally developed for aerospace applications the unique combination of strength and corrosion resistance of Alloy 718 made it candidate for applications in the oil and gas sector. As well environments became more severe stress corrosion and hydrogen embrittlement became a challenge the chemistry and microstructure of Alloy 718 was optimised to offer the greatest resistance and distinguishes today's oil field grade (API 6A) from aerospace grades. With different specification and heat treatment procedures resulting in optimised properties for the industry sector it is important to understand which specification is required.

Please see our datasheet Alloy 718 | API 6A for more information on Alloy 718 for oil and gas applications.

Applications

- gas turbine compressor blades, disks and shafts
- high strength fasteners
- high strength springs
- pumps and valves

Chemical composition

Composition - limits in % according AMS 5662 | AMS 5663

Ni	Cr	Nb	Mo	Co	Ti	Al	Mn	Si	C	B	P	S	Pb	Se	Bi	Fe
50,0 - 55,0	17,0 - 21,0	4,75 - 5,50	2,80 - 3,30	max. 1,00	0,65 - 1,15	0,20 - 0,80	max. 0,35	max. 0,35	max. 0,08	max. 0,06	max. 0,015	max. 0,015	max. 0,0005	max. 0,0003	max. 0,00003	Rest

Physical and thermal properties

Density	8,19 g/cm ³
Melting temperature	1260 - 1336 °C
Thermal conductivity at 20°C	9,5 W/m • °C
Expansion coefficient at 21 - 93°C	13,1 µm/m • °C

Mechanical properties

(room temperature, once precipitation heat treated according AMS 5663)

Yield strength	min. 1034 MPa	All information is subject to change without notice. The properties correspond to the material in the heading. They may vary for other specifications. Please contact us for more details.
Tensile strength	min. 1276 MPa	
Elongation	min. 12 %	