S+D METALS

A BIBUS GROUP COMPANY

Technical datasheet

Alloy 718 | 2.4668 | API 6A

Major specifications

UNS N07718	ASTM B637	ASTM B670	NACE MR0175			

Available product forms

Round bars according API 6A
Plates
The current stock range can be found on www.sd-metals.com. Further dimensions available upon request.

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.
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. For oil and gas applications Alloy 718 is produced to meet API 6A and NACE MR0175 requirements. The specification API 6A has tighter controls on chemistry and is heat treated following a different solution annealing and precipitation hardening procedure as compared to the AMS specifications.
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 | AMS 5662 | AMS 5663 for more information on Alloy 718 for aerospace applications.

Applications

- down hole tools
- pump shafts and impellers
- pressure vessels and tanks
- valves

Chemical composition

Composition - limits in % according API 6A

Ni	Cr	Nb	Mo	Co	Ti	Al	Mn	Si	Cu	C	P	B	Pb	Se	Bi	Fe
50.0 - 55.0	17,0 - 21,0	4,87 - 5,20	2,80 - 3,30	max. 1,00	0,80 - 1,15	0,40 - 0,60	max. 0,35	max. 0,35	max. 0,23	max. 0,045	max. 0,010	max. 0,006	max. 0,001	max. 0,0005	max. 0,00005	Rest

Physical and thermal properties

Density	8,19 g/cm³
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 according API 6A)

Yield strength	min. 827 MPa
Tensile strength	min. 1034 MPa
Elongation	min. 20 %
Hardness	32-40 HRC*

*NACE MR0175 requires hardness 40 HRC max. only.
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.

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