



# AI Materials Ltd

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## ALLOY 718

Alloy 718 is a precipitation hardenable nickel-chromium alloy. As the major alloy elements are molybdenum, niobium + tantalum, aluminium and titanium, Alloy 718 gives exceptionally high yield, good corrosion resistance, tensile and creep rupture properties at temperatures up to 700°C (1300°F).

AI Materials supplies a range of material to meet most application uses – from material specifically treated for the oil industry to maximise resistance to stress corrosion cracking (hardness is limited to 40 HRC maximum) or treated to give maximum strength and high creep resistance and weldability. Ideal applications are in oil tools, such as gate valves, choke stems, etc. , and high strength applications such as fasteners and turbines.

### We stock the following Specifications:

API 6A 718

ASTM B637 – Chemistry only and NACE MR 01 75 – Solution Annealed and Aged to meet maximum Hardness of 40 HRC

AMS 5662 – Solution Annealed (capability to AMS 5663 – test piece)

AMS 5663 - Solution Annealed and Aged fully to achieve minimum hardness of 35.5 HRC

### In the following Sizes:

12.7 mm	15.87 mm	16.25 mm	19.05 mm	22.22 mm
25.4 mm	28.575 mm	31.75 mm	35 mm	38.1 mm
44.45 mm	47.625 mm	50.8 mm	57.15 mm	70 mm
75 mm	76.2 mm	88.9 mm	90 mm	95.25 mm
101.6 mm	127 mm	130 mm	132 mm	139.7 mm
140 mm	152.4 mm	164 mm	177.8 mm	203 mm
228.6 mm	232 mm	241.3 mm	242 mm	265 mm
		304.8 mm		

We also have extensive experience of conversion and production of application-specific rings, discs and forgings in 718 material.

### Technical data – nominal percentages:

	C	Mn	Si	P	S	Cr	Ni	Mo	Cb+Ta	Ti	Al	Co	B	Cu	Fe	
Min	-	-	-	-	-	17.0	50.0	2.80	4.70	0.80	0.40	-	-	-	Bal	%
Max	0.045	0.35	0.35	0.01	0.01	21.0	55.0	3.30	5.50	1.15	0.60	1.0	0.006	0.23	-	%

### Mechanical data (Oil & Gas)

Solution Annealed & Precipitation treated	PSI	Mpa	%
Tensile Strength, min	150,000	1034	-
Yield strength (0.2% offset), min	120,000	827	-
Elongation in 2" (or 50 mm) or 4D, min	-	-	20
Reduction of Area			25
Hardness (Rockwell)	40HRC (max)		

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