

Inconel® 718

Smiths High Performance



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High Strength Superalloy

Inconel® 718 offers excellent yield strength, which works efficiently in low-temperature service.

Inconel® 718 is a precipitation-hardenable nickel-based alloy explicitly designed to offer exceptionally high creep-rupture, tensile and yield properties at temperatures up to 1300°F.

The alloy displays excellent weldability compared to the nickel-base superalloys hardened by aluminium and titanium. Uses of Inconel 718® include jet engine parts, high-speed airframe parts such as wheels, buckets, spacers, and high-temperature bolts and fasteners. The oil & gas sector utilises the alloy for wellhead components.

The material is resistant to atmospheric, stress and fatigue corrosion, with good strength and ductility in sub-zero temperatures.

Inconel® 718 is non-magnetic and spark resistant and presents a highly versatile high-performance alloy.



Typical Applications:

- Exhaust systems
- Connecting rod bolts
- Race engine valves
- Safety valves

Material Specifications:

- AMS 5596 (sheet, strip and plate)
- AMS 5662/5663 (bar and billet)
- AMS 5832 (wire)
- AMS 5589/5590 (seamless tubular products)
- NACE MRO175 (oil and gas specification)

The UNS number for this material is NO7718.

About Smiths High Performance

Smiths High Performance is a leading stockholder and supplier of high-performance engineering materials. We are material supply chain partners supporting high-technology market sectors.



Further technical data available on the reverse of this Datasheet

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*Chemical Composition (weight, %)

	C	Mn	Si	P	S	Cr	Ni	Mo	Nb	Ti	Al	Co	B	Cu	Pb	Bi	Se
Min						17.00	50.00	2.80	4.75	0.65	0.20						
Max.	0.08	0.35	0.35	0.015	0.015	21.00	55.00	3.30	5.50	1.15	0.80	1.00	0.006	0.30	0.0005	0.00003	0.0003

*Properties as per AMS 5662

Mechanical Properties

Condition	Approximate Tensile Strength		Approximate Service Temperature	
Annealed	800 - 1000 N/mm ²	116 - 145 ksi	-	-
No1 Sprint Temper	1000 - 1200 N/mm ²	145 - 175 ksi	-	-
No 1 Spring Temper + Annealed + Aged	1250 - 1450 N/mm ²	181 - 210 ksi	-200 to 550° C	-330 to 1020° F
Sprint Temper	1300 - 5100 N/mm ²	189 - 218 ksi	-	-
Spring Temper + Annealed + Aged	1250 - 1450 N/mm ²	181 - 210 ksi	-200 to 550° C	-330 to 1020° F

Product Summary:

- Precipitation hardening nickel-based alloy
- Excellent resistance to stress corrosion cracking
- Excellent corrosion & fatigue resistance
- Excellent weldability
- Good strength and ductility
- Superior yield strength
- Excellent tensile strength
- Non-magnetic and spark resistant
- Used in motorsport, aerospace and oil & gas sector
- Processing operations available in-house
- Offered to our customers, ex-stock
- Testing is available via our in-house UKAS laboratory

...where performance matters...

When you purchase high-performance materials from **Smiths High Performance**, you will join some of the biggest and best global engineering companies. We are a Tier 1 supply chain partner to the world's leading motorsport companies. Our unique business structure and ethos allow us to offer services otherwise unavailable in this market sector.

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