Inconel® 718

Product Data Sheet

High strength superalloy

Excellent yield strength which works efficiently in low-temperature service

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

The alloy offers excellent weldability when 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 and gas sector for wellhead components.

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

bsi. AS/EN 9100 SERIES Aviation, Space and Defense

UKAS TESTING 1930

Typical Applications:

- Exhaust systems
- Connecting rod bolts
- Race engine valves
- Hot structural aerospace applications
- Safety valves
- Gas turbines
- Jet engine components
- Rocket motors
- Wellhead components

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 to the global motorsport sector. We are supply partners in a range of specialist motorsport markets including **Formula 1, Formula E, NASCAR, MOTO GP, WEC & WRC.**

Further technical data available on the reverse of this Datasheet

Inconel® 718

Chemical Composition

Weight %	Ni + Co	Cr	Fe	Nb +Ta	Mo	Ti	Al
Min:	50 - 55%	17 - 21%	BAL	4.75 - 5.5%	2.8 - 3.3%	0.65 - 1.15%	0.2 - 0.8%

Mechanical Properties

Condition	Approximate Tensile Strength		Approximate Sercice Temperature	
Annealed	800 - 1000 N/mm²	116 - 145 ksi	-	-
No1 Sprint Temper	1000 - 1200 N/mm²	145 - 175 ksi	-	-
No 1 Spring Temper + Annealed + Aged	1250 - 1450 N/mm²	181 - 210 ksi	-200 to 550° C	-330 to 1020° F
Sprint Temper	1300 - 5100 N/mm²	189 - 218 ksi	-	-
Spring Temper + Annealed + Aged	1250 - 1450 N/mm²	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 customers ex-stock
- Testing available via our in-house UKAS laboratory

...where performance matters...

When you purchase high-performance materials from **Smiths High Performance**, you will be joining 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 allows us to offer services which are otherwise unavailable in this market sector.

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