

Nimonic® 80A Superalloy

Smiths High Performance



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Outstanding Mechanical Properties

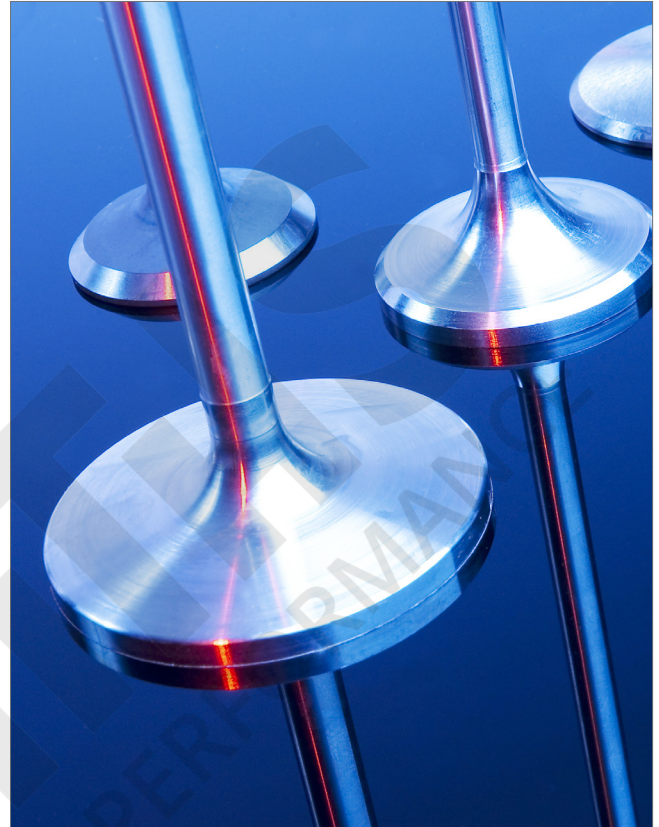
A nickel-based alloy offering excellent corrosion resistance and very high mechanical properties after hardening.

Nimonic® 80A Superalloy is a nickel-chromium-based material with excellent corrosion and oxidation resistance.

The product is a precipitation hardenable alloy with additional alloying elements of aluminium, titanium and carbon. The product is a wrought, age-hardenable material developed to operate in service temperatures up to 815° C (1500°F).

Nimonic® 80A performs well in any application where high temperature and continual stresses are significant considerations. Traditionally, it finds use in applications requiring these characteristics, such as gas turbines and nuclear generators; in the motorsport sector, material applications include exhaust valves in racing engines and spindles and fasteners.

Supplied in the solution-treated condition makes it easier to machine, and subsequent ageing treatment results in very high mechanical performance properties with outstanding resistance to creep and fatigue.



Product Benefits:

- High oxidation and corrosion resistance
- Outstanding mechanical properties after hardening
- Suitable for elevated temperature applications
- Good machinability
- Easily welded

Corrosion Resistance:

The corrosion resistance of Nimonic® 80A in oxidising atmospheres is excellent - this includes heating and cooling conditions. This protection is due to the chromium oxide film formed on the surface of the alloy, which also offers resistance at elevated temperatures.

The machinability of the alloy is also superior and may be readily formed and welded using conventional welding methods.

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.



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Further technical data available on the reverse of this Datasheet

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Chemical Composition (weight, %)

	C	Cr	Si	Cu	Fe	Mn	Ti	Al	Co	B	Zr	Pb	S	Ni
Min:		18.00					1.80	1.00						
Max:	0.10	21.00	1.00	0.20	3.00	1.00	2.70	1.80	2.00	0.008	0.15	0.0025	0.015	Bal

Mechanical Properties

Tensile Strength (annealed)	Yield Strength (annealed)	Elongation at break
1250 MPa (181 ksi)	780 MPa (113 ksi)	30%

Applications in Motorsport:

- Engine exhaust valves and spindles
- Fasteners
- Gearboxes

Annealing:

Nimonic® alloy 80A should be annealed at 1079° C (1975°F) for about 8 hours and air-cooled.

Note that Nimonic® 80A is similar to Nimonic® 75 but can be made precipitation hardenable.

Availability:

Round bar and plate

...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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