431 Stainless Steel

Smiths High Performance

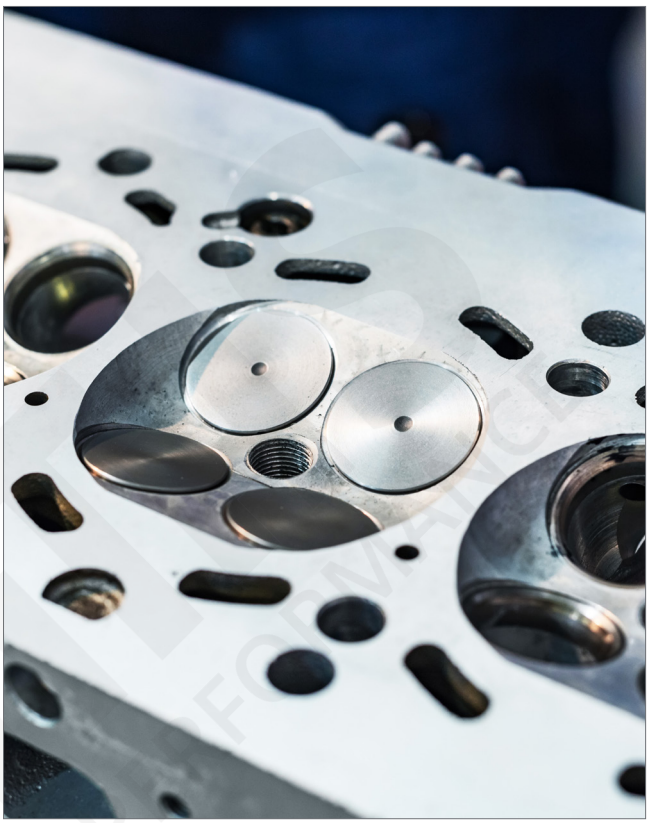
High Torsional & Tensile Strength

431 stainless steel offers performance characteristics which are ideal for manufacturing shafts.

Type 431 is a martensitic stainless steel alloy which offers various performance benefits.

The heat-treatable stainless steel provides a good combination of strength and toughness. The material also provides good machinability after heat treatment, although welding is more complicated and is susceptible to cracking unless pre-heated. Additional hardness and wear resistance may be enhanced by nitriding, which also improves fatigue resistance.

431 stainless offers the highest corrosion resistance of all martensitic stainless steels, although resistance reduces once nitrided.



Suitability in Motorsport:

431 stainless steel has traditionally found use in engineering applications throughout the oil & gas sector but also finds use in motorsport, particularly in producing valve stems and engine valve components.

Product Benefits:

- High torsional & tensile strength
- Good machinability after heat treatment
- Good corrosion resistance
- Can be nitrided
- Nitriding increases hardness and fatigue resistance

Motorsport Applications:

- Valve stems
- Bolts & fasteners
- Bearings
- Pump shafts

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**.

SCAN ME

Further technical data available on the reverse of this Datasheet

431 Stainless Steel

Smiths High Performance

* Chemical Composition (weight, %)

	C	Mn	Si	P	S	Cr	Ni
Min:	0.12					15.00	1.50
Max:	0.22	1.50	1.00	0.04	0.03	17.00	2.50

* Properties as per BS EN 10088-3, 1.4057

* Mechanical Properties

Property	Value	Unit of Measure
Ultimate Tensile Strength	800 - 950	MPa
Proof Stress	600 min	MPa
Elongation A5	12	%

* Properties as per BS EN 10088-3, 1.4057 (QT800, 60-160mm)

Physical Properties

Property	Value	Unit of Measure
Density	7800	kg/m^3
Modulus of Elasticity	200	GPa
Electrical Resistivity	720	n. Ω.m
Thermal Conductivity at 100°C	20.2	W/m.K

...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.

SMITHS HIGH PERFORMANCE
Unit 3, Juno Place
Stratton Business Park
Biggleswade SG18 8XP
Tel: +44 (0)1767 604 708

AS/EN 9120 Aviation Space and Defence CERTIFIED

UKAS TESTING 1930