

S82

Smiths Advanced Metals

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Case Hardening Steel Bar

An aerospace grade with high tensile strength.

S82 steel bar is a broadly used engineering alloy produced to the British Standards specification.

The alloy is a case-hardening steel product that includes nickel, chromium and molybdenum as key alloying elements. The material offers an ultimate tensile strength (UTS) of 1,320 - 1,520 MPa with good hardenability and is produced using the electric-arc method. S82 bars and forgings are supplied in the normalised and softened delivery condition and may, where practicable, be ultrasonically inspected. Any subsequent part produced from the alloy should receive a final heat treatment which includes carburising, hardening and tempering.

S82 finds use in various engineering applications, including helicopter gears, high-stress aerospace parts and motorsport components.

We stock [S82 steel bars](#) in a wide range of sizes and conditions (including normalised and softened conditions).



Grades / Specifications

- 1.6723
- 16NCD17
- 16NiCrMo16-5
- BS S100
- BS S82
- MSRR 6009

Benefits

- Excellent transverse properties
- High strength
- Good hardenability

*Chemical Composition (weight %)

	C	Si	Mn	P	S	Cr	Mo	Ni
min.	0.14	0.15	0.25			1.00	0.20	3.80
max.	0.18	0.40	0.55	0.025	0.020	1.40	0.30	4.30

* As per BS S82

*Mechanical Properties

Ultimate Tensile Strength	1,320 - 1,520 MPa
0.2% Proof Strength	1,030 MPa
Elongation	8%
Reduction of Area	35%
Izod impact, ft lbf	25J

* Properties as per BS S82

Bar Processing

We process your bars to exact lengths courtesy of our in-house process services. We process over 2 million billets every year at our bulk warehouse in Biggleswade.

We also stock bars in closer incremental sizes, which means that you can purchase stock from us that does not necessarily need to be machined down further.

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