

440C Stainless Steel Bar (AMS 5630)

Smiths Advanced Metals

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High strength & hardenability

440 stainless steel alloys include its most popular grade, 440C - a martensitic stainless steel alloy including nickel and chromium.

440C is the most common grade in the series with other products including 440, 440A and 440B. All products are magnetic, and we stock the alloy in round bars. 440C is the most popular due to the material's hardness. The product boasts high strength, good wear and hardness capabilities, and moderate corrosion resistance.

The alloy possesses high carbon content and creates an engineering material with the highest strength and hardness rating of all stainless steels after heat treatment.

Corrosion Resistance

440C provides good corrosion resistance under atmospheric conditions and in freshwater. Good resistance is also present in mild acidic conditions and most alkalis. Optimal corrosion resistance is achieved once the alloy is hardened and tempered. Corrosion resistance is not as impressive as other austenitic stainless steel grades.

Benefits

- High strength
- Good wear resistance
- Good hardenability



Key Applications

- Valve Components
- Ball bearings
- Surgical instruments

*Chemical Composition (weight %)

	C	Cr	Mn	Si	P	S	Mo	Fe	Ni	Cu
min.	0.95	16.00					0.40	Bal		
max.	1.20	18.00	1.00	1.00	0.04	0.03	0.65	Bal	0.75	0.50

* As per AMS 5630

*Physical & Mechanical Properties

Tensile Strength	758-2030 MPa
Proof Stress	448-1900 MPa
Elongation A50 mm	4-14%
Density	7.65 g/cm ³
Thermal Conductivity	24.2 W/m.K
Modulus of Elasticity	200 GPa

*Typical Properties

Machinability & Welding

Machining is straightforward in the annealed condition, although a decent chip breaker is required. Once hardened, 440C is virtually impossible to machine.

The alloy is not usually welded due to the material's high hardenability. When welding is necessary, the alloy should be pre-heated and post-weld anneal-treated. Cooling is also essential to prevent cracking.

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