UNS S21800

Smiths Advanced Metals

Galling & Wear Resistance

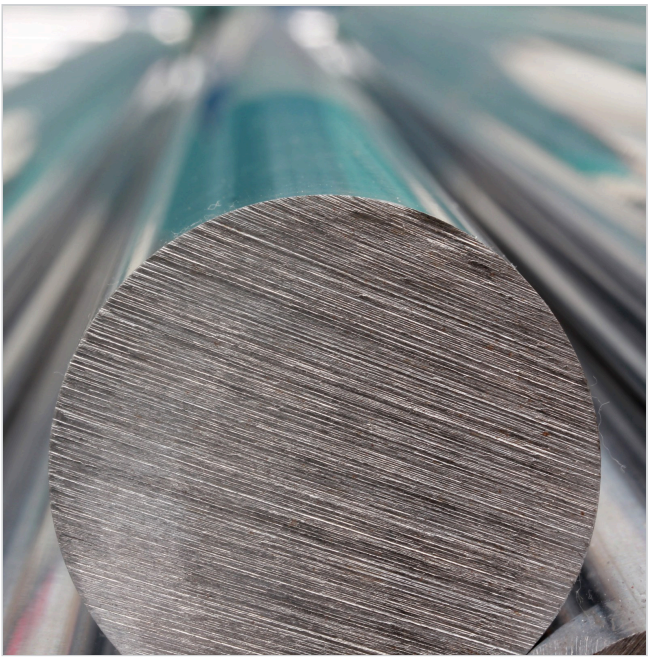
Nitrogen-strengthened austenitic stainless steel.

UNS S21800 is a highly alloyed austenitic stainless steel with outstanding resistance to galling and wear, at both ambient and elevated temperatures.

Its strength is roughly twice that of Type 316, with high shear strength and good low temperature impact properties. It also offers excellent cavitation erosion resistance and oxidation resistance similar to Type 309.

General corrosion resistance falls between Types 304 and 316. Pitting, crevice and stress corrosion resistance equal or slightly exceed annealed Type 316. Its density is 7.62 g/cm^3.

We stock UNS S21800 stainless steel as round bar in a broad range of sizes.



Grades / Specifications

- UNS S21800
- AMS 5848
- ASTM A276 / A479
- ASTM A193 B8S

Benefits

- Outstanding galling resistance
- Twice the strength of Type 316
- Excellent cavitation erosion resistance

* Chemical Composition (weight %)

	C	Mn	Si	P	S	Cr	Ni	N	Mo	Cu
min.		7.0	3.5			16.0	8.0	0.08		
max.	0.10	9.0	4.5	0.040	0.030	18.0	9.0	0.18	0.75	0.75

* As per AMS 5848

* Mechanical Properties (minimum, annealed)

Bar Diameter	Tensile Strength (MPa)	0.2% Proof Strength (MPa)	Elongation (%)	Reduction of Area (%)
Up to 12.7 mm	724	379	35	55
Over 12.7 mm	655	345	35	55

* As per AMS 5848

Key Applications

- Valve stems, seats & trim
- Pump wear rings
- Compressor & boat shafting
- Bolts & nuts
- Bridge pins & hangers

Heat Treatment

The alloy cannot be hardened by heat treatment and is supplied solution annealed. Cold working raises strength for bolting and shafting.

Like Types 304 and 316, the alloy can crack in hot chloride environments.

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bsi ISO 9001 Quality Management Systems CERTIFIED
AS/EN 9100 Aviation Space and Defence CERTIFIED
EN 9120 Aviation Space and Defence CERTIFIED
UKAS TESTING 1930

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