

### Typical Applications

- Bridge pins and hangers
- Valve stems, seats and trim
- Compressor shafts
- Boat shafting and mooring pins
- Bolts/nuts
- Pump wear rings
- Chain-drive systems – pins, bushings, wear rails & roller bearings
- Automotive valves

### Product Description

UNS S21800 is a highly alloyed austenitic stainless steel providing good mechanical strength (approaching twice that of Type 316 stainless steel) and corrosion resistance combined with excellent resistance to galling and wear at ambient and elevated temperatures. Other valuable characteristics of this alloy include good lower temperature impact properties and retention of strength at elevated temperatures, high shear strength, excellent cavitation erosion resistance and good high-temperature oxidation resistance (similar to Type 309). This alloy has a density of 7.62 g/cc.

### Corrosion Resistance

UNS S21800 stainless steel provides good resistance to general corrosion which is better than Type 304 but not at the same level as Type 316 stainless steel. The alloy is not hardenable by heat treatment and is usually put into service in the solution annealed condition. Material in the high strength cold-worked condition is often specified for bolting and shafting but there is some small compromise in terms of corrosion resistance in some environments when compared with the annealed condition. The resistance to selective attack such as pitting and crevice corrosion and stress corrosion cracking for UNS S21800 stainless steel (annealed) is equivalent to or slightly superior to that of Type 316. In common with most austenitic stainless steels, for example Types 304 and 316, UNS S21800 steel may suffer stress corrosion cracking in hot chloride ion containing environments.

### Availability

Bar, wire, extrusions, plate, forgings, tubing.

### Material Specifications

- UNS S21800
- ASTM 276
- ASTM 479
- ASTM 240
- ASTM A193 (B8S)/A194 (8S)
- AMS 5848

### Chemical Composition (weight %)

Weight (%)	C	Mn	Si	Cr	Ni	N
Min		7.00	3.50	16.0	8.00	0.08
Max	0.10	9.00	4.50	18.0	9.00	0.18

### Minimum Mechanical Properties (UNS S21800 - annealed)

	≤12.7 mm diam.	> 12.7 mm diam.
UTS, MPa (ksi)	724 (105)	655 (95)
0.2% PS, MPa (ksi)	379 (55)	345 (50)
Elongation on 4D, %	35	35
Reduction of area, %	55	55
Hardness, HRB	85	85

### Technical Assistance

Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

#### UK Service Centres:

Smiths Belfast **02895 908 897**  
 Smiths Biggleswade **01767 604 704**  
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#### Quality & Testing:



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