

Nitronic® 50 Stainless Steel (XM-19)

NITRONIC 50 STAINLESS STEEL DATASHEET

Nitronic® 50 stainless steel is a highly alloyed austenitic stainless steel that offers a combination of good mechanical strength (approaching twice that of Type 316 stainless steel) and high corrosion resistance. The mechanical properties of Nitronic 50 stainless steel at both elevated and sub-zero temperatures are very good and, unlike many austenitic stainless steels, the alloy does not become magnetic when cold worked or cooled to sub-zero temperatures. In the cold-worked condition, Nitronic 50 stainless steel possesses a yield strength up to over three times that of Type 316 stainless steel.

Typical applications for Nitronic 50 stainless steel includes medical implants, shafts, stems and pins in valves, chokes and pumps in oil & gas industry, mechanical components in nuclear installations, boat shafting, bolting and rigging.

Product forms include bar, seamless tubing, and plate.



Standards

- UNS S20910

Physical Properties

- Density: 0.285 LB/in³ (7.88 g/cm³)
- Melting Range: 2579-2642 °F (1415-1450°C)
- Modulus of Elasticity: 26.2x10⁶psi
- Magnetic Permeability: 1.004 Max

Characteristics

- High strength
- High corrosion resistance
- Low magnetic permeability

Chemical Composition

	C	Mn	S	P	Si	Cr	Ni	N	Mo	V	Nb
MIN	-	4.00	-	-	-	20.50	11.50	0.20	1.50	0.10	0.10
MAX	0.06	6.00	0.30	0.04	1.00	23.50	13.50	0.40	3.00	0.30	0.30

Mechanical Properties

Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) %	Hardness HRC (BHN)
100 (690)	55 (380)	35	55	35 (322)

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SPECIALTY STEEL SUPPLY
19201 CIRCLE LAKE DR
PINEHURST, TX 77362
Call for a quote (281) 821-7111



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