Elgiloy Specialty Metals Material Datasheet

Nitronic® 50 Alloy

UNS: S20910

Description: Nitronic® 50 is a nitrogen-strengthened austenitic stainless steel with increased corrosion resistance and higher strength compared to other austenitic stainless steels. Nitronic® 50 is non-magnetic when cold-worked or at sub-zero temperatures and provides good resistance to pitting and crevice corrosion in sea water.
Applications Include: Springs, valves, marine hardware, boat shafting, pumps, cables, screens
Industries supplied include: Oil & Gas, Chemical Processing, Food Processing, Marine

Nominal Composition

	C	Mn	P	S	Si	Cr	Ni	N	Fe	Nb	V
min	-	4.0	-	-	-	20.5	11.5	0.20	BAL	0.10	0.10
max	0.06	6.0	0.040	0.030	1.00	23.5	13.5	0.40	-	0.30	0.30

Physical Properties

	At 70°F	At 20°C
Density	0.285 lb/in^3	7.88 g/cm^3
Modulus of Elasticity (E)	28.9 x 10^3 ksi	199 GPa
Modulus of Rigidity (G)	10.8 x 10^3 ksi	74.5 GPa
Coefficient of Expansion	9.6 microinches/in.-°F (70-600°F)	17.3 µm/m-°C (20-300°C)
Electrical Resistivity	32.3 µ ohm.in	82 µ ohm.cm
Thermal Conductivity	108 Btu-in./ft.^{2}hr.-°F (300°F)	15.6 W/m-K (149°C)

Applicable Specifications

Wire & Bar	AMS 5764, ASTM A276, ASTM A479, ASTM A580, ASTM F1314, NACE MR0185/ISO 15156

Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	2050°F (1120°C)	100-145 ksi (690-1000 MPa)	-300°F to 570°F (184°C to 300°C)
Spring Temper	-	200-260 ksi (1380-1790 MPa)	-300°F to 570°F (184°C to 300°C)

Typical mechanical properties are based on ASTM A240

Elgiloy Specialty Metals
1565 Fleetwood Drive
Elgin, IL 60123
(888) 843-2350

WWW.ELGILOY.COM

LIMITATION OF LIABILITY AND DISCLAIMER OF WARRANTY:

The content in these data sheets is provided primarily by third-party melting mills and is provided for reference only. It is not intended for engineering or design.

Applications may be discussed, however, Elgiloy Specialty Metals does not recommend or endorse any material for any particular end use or application.

The data included in this data sheet are typical values and may vary.

Elgiloy Specialty Metals makes no representations or warranties, express or implied, as to the accuracy, completeness, condition, suitability, performance, fitness for a particular purpose, or merchantability of any information contained in any data sheet.

In no event will Elgiloy Specialty Metals be liable for any damages whatsoever arising from the use of the information included in the data sheets.