

Elgiloy®

**UNS R30003
W.Nr 2.4711**

Elgiloy® is a non-magnetic Cobalt-Chromium-Nickel-Molybdenum alloy having a unique combination of very high strength while maintaining excellent formability, excellent corrosion resistance, and high fatigue strength. Additional strength increases of up to 25% can be achieved through aging cold reduced material. Elgiloy® is highly resistant to sulfide stress corrosion cracking, and as a result is the alloy of choice in the most demanding sour well environments. In seawater, Elgiloy® is virtually immune to crevice and stress corrosion and pitting even at the highest strength levels. Elgiloy® performs across a wide range of temperatures: from cryogenic up to 850°F (454°C).

Applications include: springs, seals, semiconductor components, orthodontics, medical devices, surgical implants, satellite communications equipment, and weapons systems.

Industries supplied include: Oil & Gas Extraction, Medical, Dental, Aerospace, Defense, Space Exploration and Watch making.

Nominal Composition

	C	Mn	Si	P	S	Cr	Ni	Co	Mo	Be	Fe
min		1.5				19.0	14.0	39.0	6.0		Remainder
max	0.15	2.5	1.20	0.015	0.015	21.0	16.0	41.0	8.0	0.10	

Physical Properties

	At 70°F	At 20°C
Density	0.30 lb/in ³	8.30 g/cm ³
Modulus of Elasticity (E)	27 - 29 x 10 ³ ksi cold reduced 30 – 32 x 10 ³ ksi cold reduced & aged	186 – 200 GPa cold reduced 206 – 221 GPa cold reduced & aged
Modulus of Rigidity (G)	11x 10 ³ ksi	76 GPa
Coefficient of Expansion	8.4 microinches/in.-°F (70-600°F)	15.2 μm/m-°C (20-300°C)
Electrical Resistivity	39.21 μ ohm.in	99.6 μ ohm.cm
Thermal Conductivity	86.5 Btu-in./ft. ² hr.-°F	12.5 W/m-K

Applicable Specifications

Strip and Foil | AMS 5876, ASTM F1058, NACE MR 0175 & MR 0103, ISO 5832-7

Typical Mechanical Properties

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	Per AMS 5876	100 ksi min (690 MPa)	-300°F to 850°F (-184°C to 454°C)
Spring Temper	No Heat Treatment	Up to 310 ksi (2100 MPa)	-300°F to 850°F (-184°C to 454°C)
Spring Temper + Aged	After cold rolling. Age: Per AMS 5876, Nace MR 0175	Up to 380ksi (2600MPa)	-300°F to 850°F (-184°C to 454°C)

Elgiloy® is a registered trademark of Elgiloy Specialty Metals.

Phone: 1.888.843.2350

Elgiloy Specialty Metals - Strip Products
1565 Fleetwood Dr.
Elgin, IL 60123 USA

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.