

ELGILOY Specialty Metals – Wire Products

Monel® alloy 400

UNS N04400
W.Nr 2.4360/2.4361

Monel® 400 is a Nickel-Copper alloy with high strength and toughness and remains ductile even at subzero temperatures. Age-hardening treatments are not required to obtain the high strength properties of Monel® 400 because it is a solid-solution alloy that is hardened only through cold working. Monel® 400 is resistant to corrosion in many reducing environments, offering excellent corrosion resistance in seawater, hydrofluoric acid, sulfuric acid, and hydrochloric acid. Monel® 400 also shows resistance to stress corrosion cracking and pitting in fresh water, is resistant to oxidation and can operate from cryogenic temperatures to 500°F (260°C).

Applications include valves, pumps, seals, springs, and heat exchangers.

Industries supplied include: Oil & Gas Extraction, Marine, Chemical and Petrochemical Processing,

Nominal Composition

	Ni	Cu	Fe	Mn	Si	C	S
min	63	28					
max	70	34	2.5	2	0.5	0.3	0.024

Physical Properties

	At 70°F	At 20°C
Density	0.318 lb/in ³	8.8 g/cm ³
Modulus of Elasticity (E)	26.0 x 10 ³ ksi	179 GPa
Modulus of Rigidity (G)	9.5 x 10 ³ ksi	65.5 GPa
Coefficient of Expansion	8.8 microinches/in.-°F (70-600°F)	15.7 x μm/m-°C (20-300°C)
Electrical Resistivity	20.1 μ ohm.in	51.1 μ ohm.cm
Thermal Conductivity	151 Btu-in./ft. ² hr.-°F	21.8 W/m-K

Applicable Specifications

Wire & Bar | AMS 4730, AMS 4675, ASTM B164, BS 3075 NA 13, DOD QQ-N-281, NACE MR0175 (ISO 1516-3).

Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1650°F (900°C)	70-95 ksi (480-655 MPa)	-300°F to 500°F (-184°C to 260°C)
Spring Temper		145-180 ksi (1000-1240 MPa)	-300°F to 500°F (-184°C to 260°C)

Monel® is a registered trademark of the Special Metals Corporation group of companies.

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