Specialty Metals – Wire Products

Monel® alloy K-500

UNS N05500
W.Nr 2.4375

Monel® 500 is an age-hardenable Nickel-Copper alloy with Aluminum and Titanium added to the base. The addition of Aluminum and Titanium provides high strength and hardness. Monel® 500 remains ductile, tough, and is nonmagnetic even at lower temperatures. Monel® 500 is corrosion resistant and can operate from cryogenic temperatures to 450°F (232°C). Applications include springs, pumps, valves, and fasteners.
Industries supplied include: Oil & Gas Extraction, Marine, Chemical Processing, and Medical.

Nominal Composition

	Ni	Al	Fe	Mn	Cu	Ti	Si	C	S
min	63	2.3				0.35			
max	70	3.15	2	1.5	balance	0.85	0.5	0.25	0.01

Physical Properties

	At 70°F	At 20°C
Density	0.305 lb/in^3	8.44 g/cm^3
Modulus of Elasticity (E)	26 x 10^3 ksi	179 GPa
Modulus of Rigidity (G)	9.5 x 10^3 ksi	65.5 GPa
Coefficient of Expansion	8.3 microinches/in.-°F (70-600°F)	14.9 x µm/m-°C (20-300°C)
Electrical Resistivity	25.2 µ ohm.in	64 µ ohm.cm
Thermal Conductivity	121 Btu-in./ft.^{2}hr.-°F	17.5 W/m-K

Applicable Specifications

Wire & Bar	AMS 4676, ASTM B164, BS 3075 NA 18, DOD QQ-N-286, NACE MR0175 (ISO 15156-3).

Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1600°F (870°C)	80 – 110 ksi (550 – 760 MPa)	-300°F to 450°F (-184°C to 232°C)
Spring Temper		145 – 190 ksi (1000 – 1310 MPa)	-300°F to 450°F (-184°C to 232°C)
Spring Temper + Aged	After spring coiling. Age: 1000°F (540°C) for 10 hours.	160 – 200 ksi (1100 – 1380 MPa)	-300°F to 450°F (-184°C to 232°C)

Phone: 1 847 695 1900

Elgiloy Specialty Metals - Wire Products
356 N.Cross Street
Sycamore, IL 60178 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.