

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-hardneing 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 oxidization 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	С	S	
min	63	28						
max	70	34	2.5	2	0.5	0.3	0.024	
Physical Properties								
		At 70°F	At 70°F			At 20°C		
Densit	у	0.318 lb/in ³	0.318 lb/in ³			8.8 g/cm ³		
Modu	us of Elasticity (E) 26.0 x 10 ³ ksi	26.0 x 10 ³ ksi			179 GPa		
Modu	us of Rigidity (G)	9.5 x 10 ³ ksi	9.5 x 10 ³ ksi			65.5 GPa		
Coeffie	cient of Expansio	n 8.8 microinch	8.8 microinches/in°F (70-600°F)			15.7 x μm/m-°C (20-300°C)		
Electri	cal Resistivity	20.1 μ ohm.in	20.1 μ ohm.in			51.1 μ ohm.cm		
Therm	al Conductivity	151 Btu-in./ft	151 Btu-in./ft. ² hr°F			21.8 W/m-K		
Applicable Specifications								
Wire 8	& Bar AMS 4730	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 H		Heat Treatment	eat Treatment		Tensile Strength		Suggested Operating Conditions	
Annealed 1		1650°F (900°C)	550°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 MF	Pa)	-300°F to 500°F (-184°C to 260°C)		
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