



PROFESSIONAL PLASTICS

Monel® 404 Special Alloy

A nickel-copper alloy with high strength and excellent corrosion resistance in a range of media including sea water, hydrofluoric acid, sulfuric acid, and alkalis. Used for marine engineering, chemical and hydrocarbon processing equipment, valves, pumps, shafts, fittings, fasteners, and heat exchangers. Standard product forms are round, hexagon, flats, forging stock, pipe, tube, plate, sheet, strip, and wire.

Physical Properties	Metric	English	Comments
Density	8.80 g/cc	0.318 lb/in ³	
Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	550 MPa	79800 psi	Annealed
	450 MPa @Temperature 425 °C	65300 psi @Temperature 797 °F	Annealed prior to test
Tensile Strength, Yield	240 MPa	34800 psi	Annealed
	170 MPa @Temperature 425 °C	24700 psi @Temperature 797 °F	Annealed prior to test
Elongation at Break	48 %	48 %	Annealed prior to test.
	50 % @Temperature 425 °C	50 % @Temperature 797 °F	Annealed prior to test.
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000547 ohm-cm	0.0000547 ohm-cm	
Curie Temperature	35.0 °C	95.0 °F	Range is 20-50°C
Thermal Properties	Metric	English	Comments
CTE, linear	13.9 µm/m-°C @Temperature 20.0 - 100 °C	7.72 µin/in-°F @Temperature 68.0 - 212 °F	
Specific Heat Capacity	0.427 J/g-°C	0.102 BTU/lb-°F	
Thermal Conductivity	21.8 W/m-K	151 BTU-in/hr-ft ² -°F	
Melting Point	1300 - 1350 °C	2370 - 2460 °F	
Solidus	1300 °C	2370 °F	
Liquidus	1350 °C	2460 °F	
Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.30 %	<= 0.30 %	
Copper, Cu	28 - 34 %	28 - 34 %	
Iron, Fe	<= 2.5 %	<= 2.5 %	
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Nickel, Ni	>= 63 %	>= 63 %	Including Cobalt
Silicon, Si	<= 0.50 %	<= 0.50 %	
Sulfur, S	<= 0.024 %	<= 0.024 %	

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