

Special Metals MONEL® Alloy K-500

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

A precipitation-hardenable nickel-copper alloy that combines the corrosion resistance of MONEL alloy 400 with greater strength and hardness. It also has low permeability and is nonmagnetic to under -150°F (-101°C). Used for pump shafts, oil-well tools and instruments, doctor blades and scrapers, springs, valve trim, fasteners, and marine propeller shafts. Standard product forms are round, hexagon, flats, forging stock, pipe, tube, plate, sheet, strip, and wire. Data provided by the manufacturer, Special Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-MONEL-Alloy-K-500.php

Physical Properties	Metric	English	Comments
Density	8.44 g/cc	0.305 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	860 MPa	125000 psi	Precipitation Hardened prior to test
	@Temperature 425 °C	@Temperature 797 °F	
Tensile Strength, Yield	1100 MPa	160000 psi	Precipitation Hardened. Value at room temperature
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	790 MPa	115000 psi	Precipitation Hardened. Value at room temperature
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	630 MPa	91400 psi	Precipitation Hardened prior to test
	@Strain 0.200 %, Temperature 425 °C	@Strain 0.200 %, Temperature 797 °F	
Elongation at Break	25 %	25 %	Precipitation Hardened
	12 %	12 %	
	@Temperature 425 °C	@Temperature 797 °F	Precipitation Hardened prior to test.

Thermal Properties	Metric	English	Comments
CTE, linear	13.7 µm/m-°C	7.61 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
Specific Heat Capacity	0.419 J/g-°C	0.100 BTU/lb-°F	
Thermal Conductivity	17.5 W/m-K	121 BTU-in/hr-ft ² -°F	
Melting Point	1315 - 1350 °C	2399 - 2460 °F	

Thermal Properties	Metric °C	English °F	Comments
Liquidus	1350 °C	2460 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	2.3 - 3.15 %	2.3 - 3.15 %	
Carbon, C	<= 0.25 %	<= 0.25 %	
Copper, Cu	27 - 33 %	27 - 33 %	
Iron, Fe	<= 2.0 %	<= 2.0 %	
Manganese, Mn	<= 1.5 %	<= 1.5 %	
Nickel, Ni	>= 63 %	>= 63 %	
Silicon, Si	<= 0.50 %	<= 0.50 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	
Titanium, Ti	0.35 - 0.85 %	0.35 - 0.85 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000615 ohm-cm	0.0000615 ohm-cm	
Magnetic Permeability	1.002	1.002	at 200 oersted (15.9 kA/m)
Curie Temperature	-65.0 °C	-85.0 °F	

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