

Special Metals MONEL[®] Alloy R-405

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

The free-machining version of MONEL alloy 400. A controlled amount of sulfur is added to the alloy to provide sulfide inclusions that act as chip breakers during machining. Other characteristics are essentially the same as those of MONEL alloy 400. Used for meter and valve parts, fasteners, and screw-machine products. Standard product forms are round, hexagon, flats, 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-R-405.php

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
Tensile Strength, Yield	240 MPa @Strain 0.200 %	34800 psi @Strain 0.200 %	Annealed
Elongation at Break	40 %	40 %	Annealed

Thermal Properties	Metric	English	Comments
CTE, linear	13.7 $\mu\text{m/m}\cdot\text{Å}^\circ\text{C}$ @Temperature 20.0 - 100 $\text{Å}^\circ\text{C}$	7.61 $\mu\text{in/in}\cdot\text{Å}^\circ\text{F}$ @Temperature 68.0 - 212 $\text{Å}^\circ\text{F}$	
Specific Heat Capacity	0.427 J/g $\cdot\text{Å}^\circ\text{C}$	0.102 BTU/lb $\cdot\text{Å}^\circ\text{F}$	
Thermal Conductivity	21.8 W/m-K	151 BTU-in/hr-ft ² $\cdot\text{Å}^\circ\text{F}$	
Melting Point	1300 - 1350 $\text{Å}^\circ\text{C}$	2370 - 2460 $\text{Å}^\circ\text{F}$	
Solidus	1300 $\text{Å}^\circ\text{C}$	2370 $\text{Å}^\circ\text{F}$	
Liquidus	1350 $\text{Å}^\circ\text{C}$	2460 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	$\leq 0.30 \%$	$\leq 0.30 \%$	
Copper, Cu	28 - 34 %	28 - 34 %	
Iron, Fe	$\leq 2.5 \%$	$\leq 2.5 \%$	

Manganese Mn Component Elements Properties	$\leq 2.0\%$ Metric	$\leq 2.0\%$ English	Comments
Nickel, Ni	$\geq 63\%$	$\geq 63\%$	
Silicon, Si	$\leq 0.50\%$	$\leq 0.50\%$	
Sulfur, S	0.025 - 0.060 %	0.025 - 0.060 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000510 ohm-cm	0.0000510 ohm-cm	
Curie Temperature	20.0 - 50.0 $^{\circ}\text{C}$	68.0 - 122 $^{\circ}\text{F}$	

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