

Carpenter HyMu "80"® Electronic Alloy, Cold Drawn Bar

Category : Metal , Electronic/Magnetic Alloy , Nonferrous Metal , Nickel Alloy

Material Notes:

Data provided by Carpenter Technology Corporation. Carpenter HyMu "80"® alloy is an unoriented, 80% nickel-iron-molybdenum alloy which offers extremely high initial permeability as well as maximum permeability with minimum hysteresis loss. Carpenter HyMu "80" alloy has been used primarily in transformer cores, tape wound toroids and laminations where compactness and weight factors are important. It has also been used for shielding to protect electrical components from stray magnetic fields. HyMu "80"® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Carpenter-HyMu-80-Electronic-Alloy-Cold-Drawn-Bar.php

Physical Properties	Metric	English	Comments
Density	8.74 g/cc	0.316 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	97	97	
Tensile Strength, Ultimate	669 MPa	97000 psi	
Tensile Strength, Yield	414 MPa	60000 psi	Offset not specified
Elongation at Break	37 %	37 %	
Reduction of Area	71 %	71 %	
Modulus of Elasticity	232 GPa	33600 ksi	
Izod Impact	163 J	120 ft-lb	

Thermal Properties	Metric	English	Comments
CTE, linear	12.0 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.67 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 25.0 - 300 °C	@Temperature 77.0 - 572 °F	
	12.3 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.83 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 25.0 - 50.0 °C	@Temperature 77.0 - 122 °F	
Specific Heat Capacity	0.494 J/g-°C	0.118 BTU/lb-°F	
Thermal Conductivity	34.6 W/m-K	240 BTU-in/hr-ft ² -°F	
Melting Point	1454 °C	2649 °F	
Solidus	1454 °C	2649 °F	Melting Point

Thermal Properties	Metric	English	Comments
Liquidus	1458 °C	2658 °F	Melting Point

Component Elements Properties	Metric	English	Comments
Carbon, C	0.020 %	0.020 %	
Iron, Fe	15 %	15 %	as remainder
Manganese, Mn	0.50 %	0.50 %	
Molybdenum, Mo	4.2 %	4.2 %	
Nickel, Ni	80 %	80 %	
Silicon, Si	0.35 %	0.35 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000580 ohm-cm	0.0000580 ohm-cm	Temp Coefficient 0.0011/°C (-17.8-449°C)
Curie Temperature	460 °C	860 °F	

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