Carpenter Hiperco® 50 Fe-Co-V Soft Magnetic Alloy, 0.35 mm Strip Heat Treated 760°C

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

Material Notes:

Hiperco® alloy 50 is an iron-cobalt-vanadium soft magnetic alloy which exhibits high magnetic saturation (24 kilogauss), high D.C. maximum permeability, low D.C. coercive force, and low A.C. core loss. This alloy is produced in strip form only and contains a small niobium addition for grain refinement during mill processing and final heat treatment of strip.Hiperco alloy 50 strip has been used primarily in the manufacture of rotor and stator laminations in motors and generators for aircraft power generation applications. These laminations are stamped from cold rolled strip and must be final annealed in a protective atmosphere or vacuum environment at a temperature which will provide and optimum combination of mechanical and magnetic properties to withstand the high stresses encountered in service.Hiperco 50 has the same nominal composition as Vanadium Permendur and Permendur V.Hiperco® is a registered trademark of Carpenter Technology Corporation. Data provided by Carpenter Technology Corporation.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Carpenter-Hiperco-50-Fe-Co-V-Soft-Magnetic-Alloy-035-mm-Strip-Heat-Treated-760C.php

Physical Properties	Metric	English	Comments
Density	8.12 g/cc	0.293 lb/in³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	861 MPa	125000 psi	
Tensile Strength, Yield	483 MPa @Strain 0.200 %	70100 psi @Strain 0.200 %	
Elongation at Break	9.0 %	9.0 %	in 50 mm
Modulus of Elasticity	207 GPa	30000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	9.50 µm/m-°C @Temperature 25.0 - 200 °C	5.28 µin/in-°F @Temperature 77.0 - 392 °F	
	10.1 µm/m-°C @Temperature 25.0 - 400 °C	5.61 µin/in-°F @Temperature 77.0 - 752 °F	
	10.5 µm/m-°C @Temperature 25.0 - 600 °C	5.83 µin/in-°F @Temperature 77.0 - 1110 °F	
Thermal Conductivity	29.8 W/m-K	207 BTU-in/hr-ft²-°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.010 %	0.010 %	
Cobalt, Co	48.75 %	48.75 %	
Iron, Fe	49 %	49 %	as remainder
Manganese, Mn	0.050 %	0.050 %	
Niobium, Nb (Columbium, Cb)	0.050 %	0.050 %	
Silicon, Si	0.050 %	0.050 %	
Vanadium, V	1.9 %	1.9 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000400 ohm-cm	0.0000400 ohm-cm	
Curie Temperature	940 °C	1720 °F	

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