

Materion BrushCAST® 3C High Conductivity Casting Alloy (Solution Annealed & Aged)

Category : Metal , Nonferrous Metal , Copper Alloy , Copper Casting Alloy

Material Notes:

Pouring Temperature: 1095-1175°C Heat treatment required for max strength (Annealing): 870-900°C/water quench Heat treatment required for max strength (Hardening): 870-900°C/water quench Description: The unique combination of physical and mechanical properties of copper beryllium casting alloys provide a dynamic range of metallurgical alternatives to meet specific performance requirements. The inherent strength, hardness, conductivity, and castability of these materials make them ideal for applications which require a high performance engineered material solution. Advancements in component casting technology and proprietary material production technology pioneered by Brush Wellman have resulted in BrushCAST_{α,ç} alloys being a cost effective design choice. Alloy 3C offers excellent electrical and thermal conductivity, good strength & galling resistance, and accurate replication of component detail. Alloy 3C offers nearly 3 times the conductivity of the high strength alloys, twice the thermal conductivity of aluminum alloys, and ten times that of steel. Information supplied by Brush Wellman Engineered Materials. Brush Engineered Materials Inc. changed its name to Materion Corporation in March 2011.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Materion-BrushCAST-3C-High-Conductivity-Casting-Alloy-Solution-Annealed-Aged.php

Physical Properties	Metric	English	Comments
Density	8.83 g/cc	0.319 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	92 - 100	92 - 100	
Tensile Strength, Ultimate	621 - 689 MPa	90000 - 100000 psi	
Tensile Strength, Yield	483 - 552 MPa @Strain 0.200 %	70000 - 80000 psi @Strain 0.200 %	
Elongation at Break	5 - 10 %	5 - 10 %	
Modulus of Elasticity	138 GPa	20000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	18.0 Åµm/m-Å°C @Temperature 21.1 - 204 Å°C	10.0 Åµin/in-Å°F @Temperature 70.0 - 400 Å°F	
Thermal Conductivity	249.0 W/m-K	1728 BTU-in/hr-ftÅ²-Å°F	

Component Elements Properties	Metric	English	Comments
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Component Elements Properties	Metric	English	Comments
Copper, Cu	98 %	98 %	as balance
Nickel, Ni	1.0 - 2.0 %	1.0 - 2.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000344 - 0.00000382 ohm-cm	0.00000344 - 0.00000382 ohm-cm	Conductivity is 45-50% IACS

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