

Materion BrushCAST® 20C High Strength Casting Alloy (Solution Annealed & Aged)

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

Material Notes:

Pouring Temperature: 1010-1120°C Heat treatment required for max strength (Annealing): 760-790°C/water quench Heat treatment required for max strength (Hardening): 760-790°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 alloys being a cost effective design choice. BrushCAST high strength casting alloys provide peak strength and hardness greater than many steels, but with thermal conductivity similar to that of aluminum and up to five times that of steel. Additionally, these alloys offer good electrical conductivity, excellent wear and galling resistance, and the highest accuracy in replicating fine detail in cast components. 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-20C-High-Strength-Casting-Alloy-Solution-Annealed-Aged.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|--------------------------|----------|
| Density | 8.30 g/cc | 0.300 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|-----------------------------------|--|----------|
| Hardness, Rockwell C | 38 - 43 | 38 - 43 | |
| Tensile Strength, Ultimate | 1030 - 1210 MPa | 150000 - 175000 psi | |
| Tensile Strength, Yield | 827 - 1030 MPa @Strain 0.200 % | 120000 - 150000 psi @Strain 0.200 % | |
| Elongation at Break | 1 - 3 % | 1 - 3 % | |
| Modulus of Elasticity | 131 GPa | 19000 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 | 96.8 W/m-K | 672 BTU-in/hr-ft ² -Å°F | |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|--------------|--------------|----------|
| Beryllium, Be | 1.9 - 2.25 % | 1.9 - 2.25 % | |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|---------------|---------------|------------|
| Carbon, C | 0.20 - 0.35 % | 0.20 - 0.35 % | |
| Cobalt, Co | 0.35 - 0.70 % | 0.35 - 0.70 % | |
| Copper, Cu | 97 % | 97 % | as balance |

| Electrical Properties | Metric | English | Comments |
|------------------------|-----------------------------------|-----------------------------------|-----------------------------|
| Electrical Resistivity | 0.00000688 - 0.00000956 ohm-cm | 0.00000688 - 0.00000956 ohm-cm | Conductivity is 18-25% IACS |

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