

Materion Beryllium Copper Alloy 190 Strip; SHM (TM05) Temper (UNS C17200)

Category : Metal , Nonferrous Metal , Beryllium Alloy , Copper Alloy

Material Notes:

Treatment required for max strength: Mill Hardened Stress Relaxation-% Stress Remaining after 1000 hrs @ 100°C: 98% Stress Relaxation after 1000 hrs @ 200°C: 68% Formability Ratio, 90° Bend, Radius/Thickness (Good Way): 2.8 Formability Ratio (bad Way): 3.2 Superficial Hardness: 30N 52-56 Tabulated properties apply to products after age hardening. Information supplied by Brush Wellman. 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-Beryllium-Copper-Alloy-190-Strip-SHM-TM05-Temper-UNS-C17200.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|--------------------------|----------|
| Density | 8.36 g/cc | 0.302 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|---------------------------------------|---|-----------------------|
| Hardness, Rockwell C | 31 - 37 | 31 - 37 | |
| Hardness, Vickers | 309 - 363 | 309 - 363 | |
| Tensile Strength, Ultimate | 1030 - 1110 MPa | 149000 - 161000 psi | |
| Tensile Strength, Yield | 860 - 970 MPa | 125000 - 141000 psi | |
| Elongation at Break | 9.0 - 18 % | 9.0 - 18 % | |
| Modulus of Elasticity | 131 GPa | 19000 ksi | |
| Fatigue Strength | 320 - 380 MPa @# of Cycles 1.00e+8 | 46400 - 55100 psi @# of Cycles 1.00e+8 | Reverse Bending (R=1) |

| Thermal Properties | Metric | English | Comments |
|----------------------|---|---|----------|
| CTE, linear | 17.0 Åµm/m-Å°C @Temperature 20.0 - 200 Å°C | 9.44 Åµin/in-Å°F @Temperature 68.0 - 392 Å°F | |
| Thermal Conductivity | 105 W/m-K | 729 BTU-in/hr-ftÅ²-Å°F | |
| Melting Point | 870 - 980 Å°C | 1600 - 1800 Å°F | |
| Solidus | 870 Å°C | 1600 Å°F | |
| Liquidus | 980 Å°C | 1800 Å°F | |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|--------|---------|----------|
| | | | |

| Beryllium, Be Component Elements Properties | 1.8 - 2.0 % Metric | 1.8 - 2.0 % English | Comments |
|---|------------------------------|-------------------------------|------------|
| Co + Ni | >= 0.20 % | >= 0.20 % | |
| Co + Ni + Fe | <= 0.60 % | <= 0.60 % | |
| Copper, Cu | 98 % | 98 % | as balance |
| Lead, Pb | <= 0.020 % | <= 0.020 % | |

| Electrical Properties | Metric | English | Comments |
|------------------------------|----------------------------------|----------------------------------|--------------------------|
| Electrical Resistivity | 0.00000610 - 0.0000101 ohm-cm | 0.00000610 - 0.0000101 ohm-cm | 17-28% IACS Conductivity |

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