

## MoldMAX HH®

Materion Brush Performance Alloys' MoldMAX HH (High Hard) is the premier copper mold alloy. This alloy has a hardness and strength comparable with standard tool steels but its thermal conductivity is at four to six times higher. MoldMAX HH is used for injection mold cores and cavities and blow mold pinch-offs. Its high hardness provides durability in applications where other high conductivity copper alloys fail. The alloy resists galling against other mold alloys, including itself.

### CHEMICAL COMPOSITION (weight percent)

| Alloy      | Beryllium | Cobalt    | Copper  |
|------------|-----------|-----------|---------|
| MoldMAX HH | 1.6 – 2.0 | 0.2 – 0.3 | Balance |

### PHYSICAL PROPERTIES

| Elastic Modulus       | Melting Point (Solidus) | Density   | Thermal Expansion   | Thermal Conductivity (100 °C) | Heat Capacity (100 °C)      |
|-----------------------|-------------------------|---|---|-------------------------------|-----------------------------|
| 19,000 ksi<br>131 GPa | ~1600 °F<br>~870 °C     | .302 lb/in <sup>3</sup><br>8.36 g/cm <sup>3</sup> | 9.7x10 <sup>-6</sup> in/in °F<br>17.5 x 10 <sup>-6</sup> °C <sup>-1</sup> | 75 BTU/hr-ft.°F<br>130 W/m·K  | .10 BTU/lb.°F<br>0.44 J/g·K |

### TYPICAL MECHANICAL PROPERTIES\*

| 0.2% Offset Yield Strength | Ultimate Tensile Strength | Fatigue Strength 10 <sup>7</sup> Cycles (R=-1) | Elongation | Impact Strength | Hardness |
|----------------------------|---------------------------|--|------------|-----------------|----------|
| 145 ksi<br>1000 MPa        | 170 ksi<br>1170 MPa       | >45 ksi<br>>310 MPa                            | 5%         | 5 ft-lb<br>7 J  | 40 HRC   |

\*Properties may vary by shape and thickness.

### FORMS AVAILABLE

Rounds, square and rectangular bars, plate and forged rings.

### RELATED INFORMATION

Additional information on MoldMAX products can be obtained by calling 800-375-4205.

## SAFE HANDLING OF COPPER BERYLLIUM

Handling copper beryllium in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Material Safety Data Sheet (MSDS) before working with this material. For additional information on safe handling practices or technical data on copper beryllium, contact Materion Brush Performance Alloys, Technical Service Department at 1-800-375-4205.

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#### MATERION CORPORATION

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