

## PROtherm™ Alloy

Materion Performance Alloys' PROtherm alloy is a high conductivity copper mold alloy with good strength. PROtherm alloy is used as blow mold cavities, injection mold cores and cavities and hot runners. The alloy provides excellent toughness, and the highest conductivity of any alloy with tensile strength in excess of 100,000 psi.



### CHEMICAL COMPOSITION (weight percent)

Alloy	Nickel	Beryllium	Copper
PROtherm Alloy	1.4 – 2.2	0.2 – 0.6	Balance

### PHYSICAL PROPERTIES

Elastic Modulus	Melting Point (Solidus)	Density	Thermal Expansion	Thermal Conductivity (100 °C)	Heat Capacity (100 °C)
20,000 ksi 138 GPa	1900 °F 1040 °C	0.319 lb/in <sup>3</sup> 8.83 g/cm <sup>3</sup>	9.8x10 <sup>-6</sup> in/in °F 1.8x 10 <sup>-5</sup> °C <sup>-1</sup>	145 BTU/hr ft °F 250 W/m °C	.099 BTU/lb °F 0.41 J/g °C

### TYPICAL MECHANICAL PROPERTIES\*

0.2% Offset Yield Strength	Ultimate Tensile Strength	Fatigue Strength 10 <sup>7</sup> Cycles (R=-1)	Elongation	Impact Strength	Hardness
90 ksi 620 MPa	105 ksi 725 MPa	35 ksi 240 MPa	15%	40 ft lb 55 J	20 HRC (97 HRB)

\*Properties may vary by shape and thickness.

### FORMS AVAILABLE

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

### RELATED INFORMATION

Additional technical information on PROtherm and MoldMAX® products can be obtained by visiting [www.MoldMax.com](http://www.MoldMax.com) or calling 800-375-4205 (USA). For pricing and availability in North America, contact the sales location listed

## Safe Handling of MoldMAX and PROtherm Copper Beryllium Alloys

Handling copper beryllium alloys 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 Safety Data Sheet (SDS) before working with this material. For additional information on safe handling practices or technical data on copper beryllium contact Materion Performance Alloys Customer Technical Service Department at 800-375-4205.

## North American Service Centers – Sales Inquiries

For bar, tube, plate/sheet >0.060" (1.5 mm) thick  
and rod >0.5" (12.7 mm) diameter:

### Warren, MI

TOLL FREE: 800-521-8800  
PHONE: +(1) 586-772-2700  
FAX: +(1) 586-772-2472

## International Sales Offices

### CHINA/HONG KONG

TEL: + (852) 2318-1960 / 1907  
[brushalloysHK-info@materion.com](mailto:brushalloysHK-info@materion.com)

### JAPAN

TEL: + (81) 33 230 2961  
[brushalloysJP-info@materion.com](mailto:brushalloysJP-info@materion.com)

### TAIWAN, R.O.C.

TEL: + (886) 2-2747-8800 x-121  
[brushalloysTW-info@materion.com](mailto:brushalloysTW-info@materion.com)

### CHINA/SHANGHAI

TEL: + (86) 21-5237-2328  
[brushalloysCN-info@materion.com](mailto:brushalloysCN-info@materion.com)

### REPUBLIC OF KOREA

TEL: + (82) 32-811-2171  
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### UNITED KINGDOM & IRELAND

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### SINGAPORE/ASEAN

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[brushalloysSG-info@materion.com](mailto:brushalloysSG-info@materion.com)