

MoldMAX V®

Materion Performance Alloys' MoldMAX V (MMV) Alloy is a high conductivity, moderately high strength, copper nickel silicon chromium alloy. Applications include injection mold and blow mold cores and cavities.

CHEMICAL COMPOSITION (weight percent)

| Alloy | Nickel | Silicon | Chromium | Copper |
|-----------|-----------|-----------|-----------|---------|
| MoldMAX V | 6.4 – 7.6 | 1.5 – 2.5 | 0.6 – 1.2 | Balance |

PHYSICAL PROPERTIES

| Elastic Modulus | Melting Point (Solidus) | Density | Thermal Expansion | Thermal Conductivity (typical @100 °C) | Heat Capacity (typical @100 °C) |
|-----------------------|-------------------------|---|--|--|---------------------------------|
| 18,500 ksi 130 GPa | ~1800 °F ~980 °C | .314 lb/in ³ 8.69 g/cm ³ | 9.72x10 ⁻⁶ in/in °F 17.5 x 10 ⁻⁶ °C ⁻¹ | 92 BTU/hr·ft·°F 160 W/m·°C | 0.098 BTU/lb·°F 0.41 J/g·°C |

MECHANICAL PROPERTIES*

| Product Size Range | Typical Minimum 0.2% Offset Yield Strength | Typical Min. Ultimate Tensile Strength | Typical Fatigue Strength 10 ⁷ Cycles (R = -1) | Typical Minimum Elongation | Typical Impact Strength | Minimum Hardness |
|-------------------------------------|--|--|--|----------------------------|-------------------------|---------------------|
| Rod 0.5 – 3.5 in. 12.5 – 89 mm | 115 ksi 790MPa | 125 ksi 860 MPa | 40 ksi 275 MPa | 7% | 5 ft·lb 7 J | 265 HBW (27 HRC) |
| Rod 4 – 5 in. 100 – 125 mm | 105 ksi 725 MPa | 115 ksi 790 MPa | 40 ksi 275 MPa | 5% | 5 ft·lb 7 J | 250 HBW minimum |
| Plate 0.5 – 4.5 in 12.5 – 113 mm | 100 ksi 690 MPa | 115 ksi 790 MPa | 40 ksi 275 MPa | 5% | 5 ft·lb 7 J | 250 HBW minimum |

*Hardness is tested via Brinell Test Method at 3000 kgf load and equivalent HRC values converted per ASTM-E-140, Table 1 Properties may vary by shape and thickness.

FORMS AVAILABLE

Rounds, square and rectangular bars, and plate.