

MoldMAX XL®

Materion Brush Performance Alloys' MoldMAX XL is a high strength copper mold alloy with good thermal conductivity. The alloy contains no beryllium and is available in sections as large as 12" thick. The alloy's hardness is comparable with AISI P-20 tool steel, but its thermal conductivity is two to three times higher. MoldMAX XL is used as injection mold cores and cavities. The alloy provides excellent toughness, wear resistance and surface finish. MoldMAX XL typically machines faster than tool steels, and with appropriate machine tools, metal removal rates several times higher can be obtained.

CHEMICAL COMPOSITION (weight percent)

Alloy	Nickel	Tin	Copper
MoldMAX XL	8.5 – 9.5	5.5 – 6.5	Balance

PHYSICAL PROPERTIES

Elastic Modulus	Melting Point (Solidus)	Density	Thermal Expansion	Thermal Conductivity (100 °C)	Heat Capacity (100 °C)
17,000 ksi 120 GPa	1695 °F	.322 lb/in ³ 8.90 g/cm ³	9.0x10 ⁻⁶ in/in °F 16.2 x 10 ⁻⁶ °C ⁻¹	40 BTU/hr·ft·°F 70 W/m·K	.093 BTU/lb·°F 0.39 J/g·K

TYPICAL MECHANICAL PROPERTIES*

0.2% Offset Yield Strength (nominal)	Ultimate Tensile Strength	Fatigue Strength 10 ⁷ Cycles (R=-1)	Elongation	Impact Strength	Hardness
105 ksi 720 MPa	115 ksi 790 MPa	35 ksi 240 MPa	6%	15 ft·lb 20 J	30 HRC

*Properties may vary by shape and thickness.

FORMS AVAILABLE

Rounds, square and rectangular bars, and plate.