

MoldMAX XL[®] Alloy

Materion's MoldMAX XL Alloy 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 Alloy is used for injection mold cores and cavities. The alloy provides excellent toughness, wear resistance and surface finish. MoldMAX XL Alloy 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 Alloy	8.5 - 9.5	5.5 - 6.5	Balance

Typical Physical Properties

Elastic Modulus	Melting Point (Solidus)	Density	Thermal Expansion Coefficient	Thermal Conductivity (100 °C)	Heat Capacity (100 °C)
17,000 ksi 120 GPa	1695°F 925°C	0.322 lb/in ³ 8.90 g/cm ³	9.0 x 10 ⁻⁶ in/in °F 16.2 x 10 ⁻⁶ m/m °C	40 BTU/hr ft °F 70 W/m °C	0.093 BTU/lb °F 0.39 J/g °C

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, plate and forged rings.

Related Information

Additional technical information on MoldMAX products can be obtained by visiting www.MoldMax.com or by calling +1.800.375.4205.

Disclaimer:

Only the buyer can determine the appropriateness of any processing practice, end-product or application. Materion does not make any warranty regarding its recommendations, the suitability of Materion's product, or its processing suggestions for buyer's end product, application or equipment.

The properties presented on this data sheet are for reference purposes only, intended only to initiate the material selection process. They do not constitute, nor are they intended to constitute, a material specification. Material will be produced to one of the applicable industry standards, if any, listed in the Industry Standards and Specification section.

Actual properties may vary by thickness and/or part number. Please contact your local sales engineer for detailed properties to be used in simulation.

Any properties marked as preliminary are subject to change at any time as the manufacturing process is further refined.