

ToughMet® 2 Strip Advanced Bearing Technology

Materion's ToughMet 2 material is a high-performance, wrought, heat treatable, lead-free strip alloy that imparts superior mechanical performance and high thermal stability to plain bearing applications. The alloy has both excellent resistance to wear and high resistance to galling and seizing under high loads. In addition, the ToughMet 2 alloy's high thermal conductivity provides effective heat dissipation in bearing applications. Parts are easily formed and can be machined either before or after heat treatment. ToughMet 2 heat treatment is a simple single-step process for three hours at 370 - 400°C (700 - 750°F). Heat treated ToughMet 2 bearings do not significantly work harden in service. ToughMet 2 strip is available in two tempers (A and ½ H) depending on the required strength and formability. ToughMet 2 alloy is compatible with conventional processing fluids, oils, and lubricants.

Chemical Composition (Weight Percent)

Alloy	Nickel	Tin	Copper
ToughMet 2 Strip	9	6	Balance

Typical Physical Properties

Density	Thermal Conductivity (20 °C)	Thermal Expansion (20 - 200 °C)	Heat Capacity (100 °C)	Elastic Modulus		Poisson's Ratio
				before heat treat	after heat treat	
8.91 g/cm ³ 0.322 lb/in ³	52 W/m•K 30 BTU/ft•hr•°F	16 ppm/°C 9 ppm/°F	0.4 J/g•K 0.1 BTU/lb•°F	115 GPa 17 x 10 ⁶ psi	140 GPa 20 x 10 ⁶ psi	0.3

Typical Mechanical Properties

Temper	Heat Treatment	Tensile Strength	Yield Strength	Elongation (% minimum)	Hardness (HV)
A	TB00	410 - 550 MPa 60 - 80 ksi	275 - 520 MPa 40 - 75 ksi	30	100 - 150
½ H	TD02				
AT	TX00	690 - 900 MPa 100 - 130 ksi	480 - 650 MPa 70 - 95 ksi	15	220 - 280
½ HT	TS02	860 - 1030 MPa 125 - 150 ksi	690 - 825 MPa 100 - 120 ksi	6	290 - 350

Standard Availability

Available in coils; thickness to 2 mm (0.08"); tolerance is $\pm 2\%$ of strip thickness.

Industry Standards and Specifications

UNS# C72700, ASTM B 740

Related Information

Additional technical information on ToughMet 2 strip can be obtained 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.