



ToughMet® 2 Strip Advanced Bearing Technology

Materion Brush Performance Alloys' ToughMet 2 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, ToughMet 2 high thermal conductivity provides effective heat dissipation in bearing applications. Parts are easily formed and they 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 is compatible with conventional processing fluids, oils and lubricants.

CHEMICAL COMPOSITION (weight percent)

Alloy	Nickel	Tin	Copper
ToughMet® 2	9	6	Balance

PHYSICAL PROPERTIES

Density	Thermal Conductivity (20-100 °C)	Thermal Expansion (20-200 °C)	Heat Capacity (100 °C)	Elastic Modulus		Poisson's Ratio
				before heat treat	after heat treat	
8.89 g/cm ³ 0.321 lb/in ³	70 W/m•K 40 BTU/ft•hr•°F	16 ppm/°C 9 ppm/°F	0.4 J/g•K 0.1 BTU/lb•°F	115 GPa 17x10 ⁶ psi	140 GPa 20x10 ⁶ psi	0.3

MECHANICAL PROPERTIES

Temper		Heat Treatment	Tensile Strength	Yield Strength	Elongation (% minimum)	Hardness (HV)
A	TB00	before heat treatment	410-550 MPa 60-80 ksi	275-520 MPa 40-75 ksi	30	100-150
½ H	TD02		570-740 MPa 82-108 ksi	450-725 MPa 65-105 ksi	6	170-225
AT	TX00	3 hrs, 400 °C	690-900 MPa 100-130 ksi	480-650 MPa 70-95 ksi	15	220-280
½ HT	TS02	3 hrs, 370 °C	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 ±2% of strip thickness.

SPECIFICATIONS

UNS C72700, ASTM B740

RELATED INFORMATION

Additional information on ToughMet 2 availability, thickness range and pricing can be obtained by calling 800-375-4205 in the US.

North American Service Centers – Sales Inquiries

For strip, wire and rod under 0.4" (10 mm) diameter

Elmhurst, IL

TOLL FREE: 800.323.2438
LOCAL: +(1) 630.832.9650
FAX: +(1) 630.832.9657

For plate, tube, bar, and rod 0.4" (10 mm) diameter and over

Warren, MI

TOLL FREE: 800.521.8800
LOCAL: +(1) 586.772.2700
FAX: +(1) 586.772.2472

International Sales Offices

CHINA/HONG KONG

TEL: +852.2318.1960/1907
brushalloysHK-info@materion.com

INDIA/PUNE

TEL: +(91) 99606.33744
brushalloysIN-info@materion.com

SINGAPORE/ASEAN

TEL: +(65) 6842.4456
brushalloysSG-info@materion.com

CHINA/SHANGHAI

TEL: +(86) 21.5237.2328
brushalloysCN-info@materion.com

JAPAN

TEL: +(81) 33.230.2961
brushalloysJP-info@materion.com

TAIWAN, R.O.C.

TEL: +(886) 2.2747.8800x121
brushalloysTW-info@materion.com

GERMANY

TEL: +(49) 711.830.930
brushalloysDE-info@materion.com

REPUBLIC OF KOREA

TEL: +(82) 32.811.2171
brushalloysKR-info@materion.com

UNITED KINGDOM @ IRELAND

TEL: +(44) 118.930.3733
brushalloysUK-info@materion.com

To obtain a complete list of Materion's global distributor/agent network, visit us online at www.materion.com/BrushAlloys/ContactUs.



Materion Brush Performance Alloys

6070 Parkland Boulevard
Mayfield Heights, OH 44124 USA
phone: 216.486.4200 fax: 216.383.4005
email: BrushAlloys-info@materion.com

MATERION CORPORATION

www.materion.com/alloys
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