



## ToughMet® 3 AT Large Diameter Tubes

Materion Brush Performance Alloys' ToughMet® 3 large diameter tubes are a spinodal copper nickel tin alloy designed for use in heavy industrial machinery requiring plain bearings with high strength, low friction, wear resistance, corrosion resistance and good thermal conductivity.

### CHEMICAL COMPOSITION (weight percent)

Alloy	Nickel	Tin	Copper
ToughMet® 3	15	8	Balance

### PHYSICAL PROPERTIES

Elastic Modulus	Fatigue Strength*	Poisson's Ratio	Coefficient of Thermal Expansion	Density	Thermal Conductivity
21 x 10 <sup>6</sup> psi 144 kN/mm <sup>2</sup>	50 ksi 345 MPa	0.33	8.9 x 10 <sup>-6</sup> in/in/°F 16.1 x 10 <sup>-6</sup> m/m/°C	0.325 lb/in <sup>3</sup> 9.00 g/cm <sup>3</sup>	22 Btu/hr/ft/°F 38 W/m/°C

### MECHANICAL PROPERTIES

0.2% Offset Yield Strength (minimum)		Ultimate Tensile Strength (minimum)		Elongation (minimum)	Hardness (minimum)
(ksi)	(N/mm <sup>2</sup> )	(ksi)	(N/mm <sup>2</sup> )	(%)	(HRC)
110	760	128	880	5	30

### STANDARD AVAILABILITY

Outside Diameter	Wall Thickness
8.100" – 13.000" (+/-0.050")	Up to 3" depending on Diameter

Length: 28 inch maximum

Finishing Allowance: When selecting OD and ID, add 1/2" to the largest finish-machined OD and subtract 0.125" from the smallest finish-machined ID of the component.

### SPECIFICATIONS

UNS C72900, AMS 4598

### RELATED INFORMATION

Additional information on ToughMet® 3 AT large diameter tube availability, size capability and pricing can be obtained by calling 800-375-4205.

## 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](mailto:brushalloysHK-info@materion.com)

### INDIA/PUNE

TEL: +(91) 99606.33744

[brushalloysIN-info@materion.com](mailto:brushalloysIN-info@materion.com)

### SINGAPORE/ASEAN

TEL: +(65) 6842.4456

[brushalloysSG-info@materion.com](mailto:brushalloysSG-info@materion.com)

### CHINA/SHANGHAI

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### UNITED KINGDOM @ IRELAND

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[brushalloysUK-info@materion.com](mailto: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](http://www.materion.com/BrushAlloys/ContactUs).



### Materion Brush Performance Alloys

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### MATERION CORPORATION

[www.materion.com/alloys](http://www.materion.com/alloys)  
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