



## ToughMet® 3 TSI20U Rod

Materion Brush Performance Alloys' ToughMet® 3 TS I20U Rod is a spinodal copper nickel tin alloy designed for use in applications demanding wear resistance, high bearing performance, resistance to salt water corrosion and good ductility.

### CHEMICAL COMPOSITION (weight percent)

Alloy	Nickel	Tin	Copper
ToughMet® 3 TS 120U	15	8	Balance

### PHYSICAL PROPERTIES

Elastic Modulus	Poisson's Ratio	Electrical Conductivity	Coefficient of Thermal Expansion	Density	Magnetic Permeability
21 x 10 <sup>6</sup> psi 144 kN/mm <sup>2</sup>	0.3	<7% IACS <4 MS/m	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>	<1.001

### MINIMUM MECHANICAL PROPERTIES

Diameter		0.2% Offset Yield Strength		Ultimate Tensile Strength		Elongation	Hardness		CVN Impact Toughness	
inch	mm	ksi	N/mm <sup>2</sup>	ksi	N/mm <sup>2</sup>	%	HRC	HBW	Ft-lbs	J
0.75 – 1.6	19 - 41	110	755	120	825	15	24	235	15	20
1.6 – 3.25	41 - 83								12	16

### STANDARD AVAILABILITY

Sizes: .50 to 3.25 inch (13-83 mm) diameter

Length: Nominal 6-12 ft (1829-3658 mm) random mill lengths with ends

Surface: Mill hardened finish

Straightness: <0.5 inch deviation in a 10 ft length (12 mm in a 3048 mm length)

Tolerance: Up to 1.6 inch (41 mm) diameter +0.05/-0 inch (+0.5/-0 mm)

1.6-3.25 inch diameter (41-83 mm) +0.08/-0 inch (+2/-0 mm)

### SPECIFICATIONS/STANDARDS

UNS C72900, ASTM B 249

### RELATED INFORMATION

Additional information on ToughMet® 3 TS I20U rod availability and size capability can be obtained by calling 800-375-4205.



**Materion Brush Performance Alloys**  
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#### MATERION CORPORATION

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

**AD0051\_0611**

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### 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

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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).



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