



## ToughMet® 3 TSI60U Tube

Materion Brush Performance Alloys' ToughMet® 3 TS I60U tube is a non-magnetic spinodal copper nickel tin alloy designed to be used in very high strength mechanical components for aerospace and oil and gas applications. It may be used where erosion and galling wear resistance need to be combined with resistance to seawater and sour environments. Typical applications include aircraft landing gear bushings and oilfield drilling tool pressure housings. Precision tolerances are available.

### CHEMICAL COMPOSITION (weight percent)

| Alloy               | Nickel | Tin | Copper  |
|---------------------|--------|-----|---------|
| ToughMet® 3 TS I60U | 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<br>144 kN/mm <sup>2</sup> | 0.32            | <7% IACS<br><4 MS/m     | 8.9 x 10 <sup>-6</sup> in/in/°F<br>16.1 x 10 <sup>-6</sup> m/m/°C | 0.325 lb/in <sup>3</sup><br>9.00 g/cm <sup>3</sup> | <1.001                |

### MECHANICAL PROPERTIES

| Temper  | 0.2% Offset Yield Strength (Min) |                      | Ultimate Tensile Strength (Min) |                      | Elongation (% Min) |
|---------|----------------------------------|----------------------|---------------------------------|----------------------|--------------------|
|         | (ksi)                            | (N/mm <sup>2</sup> ) | (ksi)                           | (N/mm <sup>2</sup> ) |                    |
| TS I60U | 150                              | 1034                 | 160                             | 1103                 | 3                  |

### STANDARD AVAILABILITIES

1.4 inches (36 mm) minimum ID to 6.25 inches (159 mm) maximum OD. Wall thicknesses approximately 10% to 20% of the outside diameter are available. Shipped with mill finished surface condition.

### SPECIFICATIONS/STANDARDS

UNS C72900, ISO 15156, NACE MRO 175, ASTM B 251

### RELATED INFORMATION

Additional information on ToughMet® 3 TS I60U tube availability and size capability can be obtained by calling 800-375-4205.

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**Aleaciones de Berilio S.L.**

Buen Suceso 13 - 28008 Madrid - tel. 915 488 187 - fax 915 489 307 - [paco\\_aguirre@aleacionesdeberilio.com](mailto:paco_aguirre@aleacionesdeberilio.com)

**CHINA/HONG KONG**

TEL: + (852) 2318-1960 / 1907  
[brushalloysHK-info@materion.com](mailto:brushalloysHK-info@materion.com)

**CHINA/SHANGHAI**

TEL: + (86) 21-5237-2328  
[brushalloysCN-info@materion.com](mailto:brushalloysCN-info@materion.com)

**GERMANY**

TEL: + (49) 711-830-930  
[brushalloysDE-info@materion.com](mailto:brushalloysDE-info@materion.com)

**INDIA/PUNE**

TEL: + (91) 99606-33744  
[brushalloysIN-info@materion.com](mailto:brushalloysIN-info@materion.com)

**JAPAN**

TEL: + (81) 33 230 2961  
[brushalloysJP-info@materion.com](mailto:brushalloysJP-info@materion.com)

**REPUBLIC OF KOREA**

TEL: + (82) 32-811-2171  
[brushalloysKR-info@materion.com](mailto:brushalloysKR-info@materion.com)

**SINGAPORE/ASEAN**

TEL: + (65) 6842-4456  
[brushalloysSG-info@materion.com](mailto:brushalloysSG-info@materion.com)

**TAIWAN, R.O.C.**

TEL: + (886) 2-2747-8800 x-121  
[brushalloysTW-info@materion.com](mailto:brushalloysTW-info@materion.com)

**UNITED KINGDOM & IRELAND**

TEL: + (44) 118-930-3733  
[brushalloysUK-info@materion.com](mailto:brushalloysUK-info@materion.com)

The logo for TOUGHMET, featuring the word "TOUGHMET" in a bold, white, sans-serif font with a blue outline, set against a blue rectangular background.

**Materion Brush Performance Alloys**  
6070 Parkland Boulevard  
Mayfield Heights, OH 44124 USA  
phone: 216.486.4200 fax:216.383.4005  
email: [alloys-info@materion.com](mailto:alloys-info@materion.com)

**MATERION CORPORATION**

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

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