

## Copper Beryllium and ToughMet Alloys

### *Alloys for Aerospace Applications*

There are few environments harsher than those encountered in aerospace applications. Extremes in temperature, friction and vibration can threaten the integrity of mission-critical components. We offer a host of statistically proven high-performance materials and specialty alloys designed to address these challenges.

#### Copper Beryllium Alloys

- C17200
- C17300
- AMS 4530
- AMS 4532
- AMS 4533
- AMS 4534
- AMS 4535
- AMS 4650
- AMS 4651
- ASTM B196, B643
- ASNA 3400, 3414, 3417
- ASNA 6110
- BMS 7-353 Type 1, 2
- QQ-C-530
- DMS 1904, 2088
- AMS-H-7199

#### Leaded Nickel Copper Alloys

- C191500

#### Related Information

Additional technical information on Materion alloys may be obtained by calling +1.800.375.4205. For pricing and availability, call +1.800.521.8800. Visit [materion.com/aerospace](http://materion.com/aerospace).

#### Health and Safety

Processing beryllium-containing alloys poses a health risk if safe practices are not followed. Inhalation of airborne beryllium can cause serious lung diseases in some individuals. Occupational safety and health regulatory agencies worldwide have set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Safety Data Sheet (SDS) before working with this material. The SDS and additional important beryllium health and safety information and guidance can be found at [berylliumsafety.com](http://berylliumsafety.com), [berylliumsafety.eu](http://berylliumsafety.eu) and [Materion.com](http://Materion.com). For questions on safe practices for beryllium-containing alloys, contact the Materion Product Stewardship Group at +1.800.862.4118 or contact us by email at [Materion-PS@Materion.com](mailto:Materion-PS@Materion.com).

#### ToughMet® Copper-Nickel-Tin Alloys

- C72900
- AMS 4595
- AMS 4596
- AMS 4597
- AMS 4598
- AIMS 02-04-002
- ABS 5152
- ABS 5849
- BMS 7-373 Class 90, 100, TS
- MTL 4112
- Ma-1705-12, 13

#### Quality Certifications and Listings

- ISO 9001 and AS 9100 D - Elmore, Lorain, Mayfield Heights, Elmhurst and Shoemakersville locations
- NADCAP - Elmore and Lorain locations
- ToughMet and copper beryllium are listed in MMPDS Handbook

## Aerospace Alloys

Alloy	Temper	Product Form	Size Range	Specification
Copper Beryllium C172 Brush Alloy 25	Annealed TB00	Rod and Bar	0.188" - 14" (4.80 - 356 mm)	AMS 4650
Copper Beryllium C172 Brush Alloy 25	Hard TD04	Rod and Bar	0.188" - 2.50" (4.80 - 63.5 mm)	AMS 4651
Copper Beryllium C172 Brush Alloy 25	Annealed TB00	Sheet, Strip and Plate	0.004" - 0.250" (0.10 - 6.40 mm)	AMS 4530
Copper Beryllium C172 Brush Alloy 25	1/2 Hard TD02	Sheet and Strip	0.004" - 0.188" (0.10 - 4.80 mm)	AMS 4532
Copper Beryllium C172 Brush Alloy 25	AT TF00	Rod and Bar	0.188" - 14" (4.80 - 356 mm)	AMS 4533 ASNA 3417
Copper Beryllium C172 Brush Alloy 25	HT TH04	Rod and Bar	0.188" - 2.50" (4.80 - 63.50 mm)	AMS 4534
Copper Beryllium C172 Brush Alloy 25	AT TF00	Tube	O.D. 1.75" - 8.60" (44 - 220 mm) I.D. 812" - 6.50" (20 - 165 mm)	AMS 4535 ASNA 6110
Copper Beryllium C172 Brush Alloy 25	Type 1, 2	Rod and Bar	0.188" - 14" (4.80 - 356 mm)	BMS 7-353
		Tube	O.D. 1.75" - 8.60" (44 - 220 mm) I.D. 812" - 6.50" (20 - 165 mm)	
C72900 Copper-Nickel-Tin ToughMet® 3 Alloy	AT90, AT110 TX00, TX02	Rod and Bar	1" - 8.50" (25 - 216 mm)	AMS 4596 ABS 5849 MTL 4112 Ma-1705-13
		Tube	O.D. 1.1" - 13.60" (28 - 330 mm)	AMS 4598 ABS 5152 Ma-1705-13
	Rod	O.D. Up to 8.56" (217 mm)	BMS 7-373 (Class 90)	
		Up to 4" (100 mm)	BMS 7-373 (Class 100 and Class 90)	
Plate	0.188" - 4.50" (4.75 - 114 mm)	AMS 4595		
TS160U	Rod	Up to 3.25" (82.50 mm)	AMS 4597	
		Up to 6.0" (152 mm)	BMS 7-373 Class TS Ma-1705-12	

Each specification listed above may cover different size ranges. Not all sizes listed are covered by all the specifications. Please consult each individual specification for appropriate size availability.

### 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.

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