

## Brush Alloy 310

Materion Brush Performance Alloys' Brush Alloy 310 is a low cost copper beryllium nickel cobalt alloy with high electrical and thermal conductivity possessing good strength and hardness. The alloy has been shown to have excellent thermal fatigue resistance in use. Typical applications include resistance welding electrodes and other welding electrode components. The material also is used for such applications as non-ferrous metal casting dies, plungers and nozzles.

### CHEMICAL COMPOSITION (weight percent)

Alloy	Beryllium	Nickel	Cobalt	Copper
310	0.4-0.7	0.8-1.3	0.8-1.3	Balance

### PHYSICAL PROPERTIES

Elastic Modulus	Melting Point (Liquidus)	Melting Point (Solidus)	Electrical Conductivity	Density	Thermal Conductivity
19,600 ksi 135 GPa	1975°F 1080°C	1880°F 1030°C	45% IACS (nominal) 3.6 μ-ohm-cm (nominal)	0.318 lb/in <sup>3</sup> 8.81 g/cm <sup>3</sup>	135 BTU/hr. ft °F 235 W/mK

### TYPICAL MECHANICAL PROPERTIES

Temper	0.2% Offset Yield Strength (nominal)		Ultimate Tensile Strength (nominal)		Elongation (nominal) (%)	Hardness BHN (HRB)
	(ksi)	(N/mm <sup>2</sup> )	(ksi)	(N/mm <sup>2</sup> )		
AT or HT* (TF00 or TH04)	96-107	660-740	104-119	720-820	10-14	230 min (98 min)

\*Dependent upon size/shape required

### FORMS AVAILABLE

Rounds, square and rectangular bars, forged plates, cast rounds and parts finished machined per customer drawings

### SPECIFICATIONS

Meets RWMA Class 3

### RELATED INFORMATION

Additional information on Brush Alloy 310 can be obtained by calling 800-375-4205.

## SAFE HANDLING OF COPPER BERYLLIUM

Handling copper beryllium in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Material Safety Data Sheet (MSDS) before working with this material. For additional information on safe handling practices or technical data on copper beryllium, contact Materion Brush Performance Alloys, Technical Service Department at 1-800-375-4205.

### 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

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[brushalloysUK-infor@materion.com](mailto:brushalloysUK-infor@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).

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#### MATERION CORPORATION

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

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