

## Alloy 290 (C17200) Strip

Materion Brush Performance Alloys' Alloy 290 strip provides the highest strength of any mill hardened copper alloy, with electrical conductivity considerably greater than other high strength copper alloys. This alloy features good stress relaxation resistance and high fatigue strength. Typical applications include high reliability spring contacts for battery contacts, audio jack contacts, and board to board contacts.

### CHEMICAL COMPOSITION (weight percent)

Alloy	Beryllium	Nickel + Cobalt	Nickel + Cobalt + Iron	Copper
C17200	1.8 – 2.0	0.2 min.	0.6 max.	Balance

### PHYSICAL PROPERTIES\*

Elastic Modulus	Melting Point (Solidus)	Electrical Conductivity/resistivity	Density	Thermal Expansion Coefficient	Thermal Conductivity (25 °C)
19,000 ksi 131 GPa	1600°F 870 °C	17-28% IACS 6.2-10.1 μΩ-cm	0.302 lb/in <sup>3</sup> 8.36 g/cm <sup>3</sup>	9.7×10 <sup>-6</sup> in/in °F 17.0×10 <sup>-6</sup> m/m °C	60 BTU/ft hr °F 105 W/ m K

### MECHANICAL PROPERTIES\*

Temper	0.2% Offset Yield Strength		Ultimate Tensile Strength		Elongation**	Formability (Minimum Bend Radius to Thickness Ratio for a 90° Bend)***	
	ksi	MPa	ksi	MPa		Longitudinal	Transverse
TM02	95-115	680-800	120 min.	820 min.	14 min.	0.0	0.0
TM03	110-125	760-860	135 min.	930 min.	12 min.	0.5	0.5
TM04	115-135	790-930	140 min.	960 min.	9 min.	0.7	0.7
TM06	135-155	930-1070	155 min.	1060 min.	6 min.	1.5	1.5
TM08	155-175	1060-1210	175 min.	1200 min.	3 min.	3.5	3.0

\*\*Properties may vary by thickness. Percent elongation numbers are valid for strip 0.004" (0.10 mm) and thicker. Formability numbers valid for strip 0.00787" (0.20 mm) and thinner.

### FORMS AVAILABLE

Alloy 290 strip is available in widths ranging from 0.050" to 16" (1.27 mm to 452.7 mm) and in thicknesses ranging from 0.002" to 0.035" (0.05 mm to 0.9 mm).

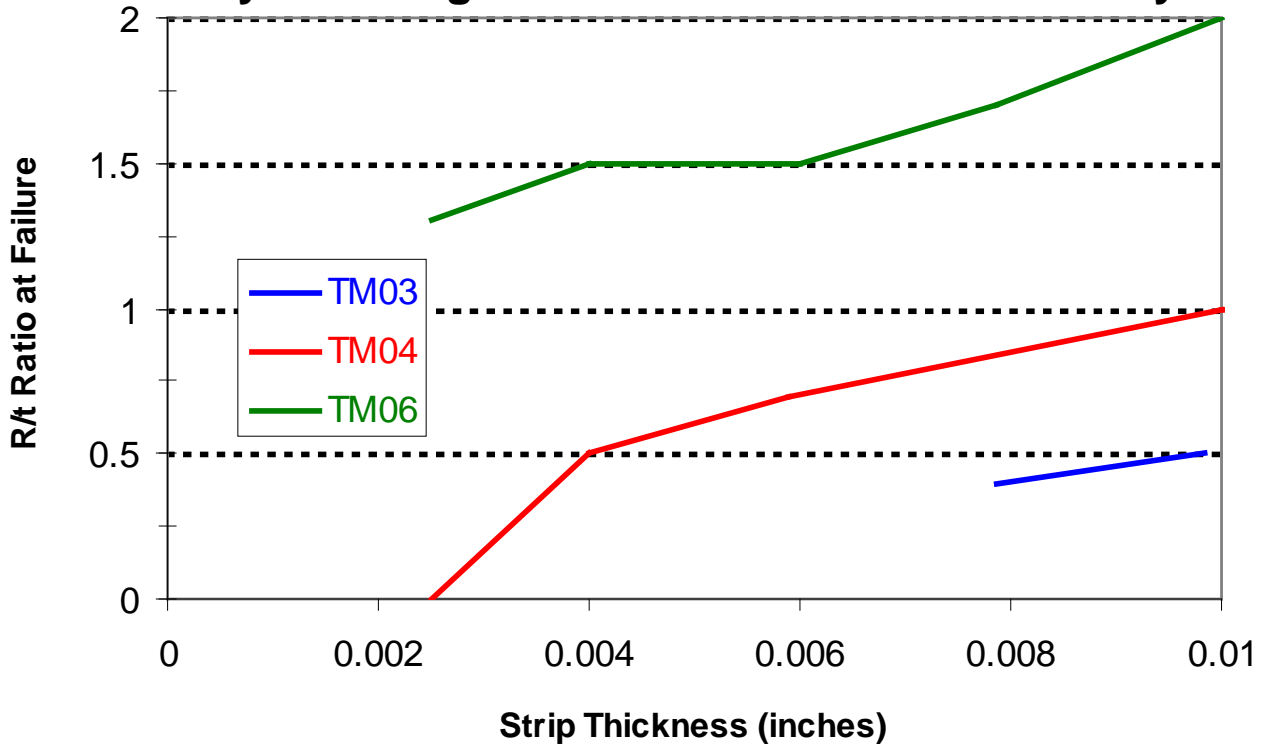
### SPECIFICATIONS

C17200, ASTM B-194, NACE MRO175/ISO 15156

### RELATED INFORMATION

Additional information on Alloy 290 may be obtained by phoning 800-375-4205.

## Alloy 290 Longitudinal & Transverse Formability



### 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  
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### International Sales Offices

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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).