

Alloy 3 (C17510) Strip

Materion Alloy 3 mill hardened strip provides excellent strength with high electrical conductivity and good resistance to stress relaxation. It is a drop-in replacement for the obsolete Alloy 10 (C17500) strip material in automotive, appliance and telecom market applications. Typical applications include high reliability spring contacts for switches and relays.

Chemical Composition (Weight Percent)

Alloy	Beryllium	Nickel	Copper
C17510	0.20 - 0.60	1.4 - 2.2	Balance

Typical Physical Properties*

Elastic Modulus	Melting Point (Solidus)	Electrical Conductivity/resistivity	Density	Thermal Expansion Coefficient (20 °C to 200 °C)	Thermal Conductivity (25 °C)
20,000 ksi 138 GPa	1900 °F 1040 °C	45-60% IACS 2.9-3.8 μΩ-cm	0.319 lb/in ³ 8.83 g/cm ³	9.8 x 10 ⁻⁶ in/in °F 17.6 x 10 ⁻⁶ m/m °C	140 BTU/ft hr °F 240 W/m K

*Properties listed for the precipitation age hardened (heat treated) condition.

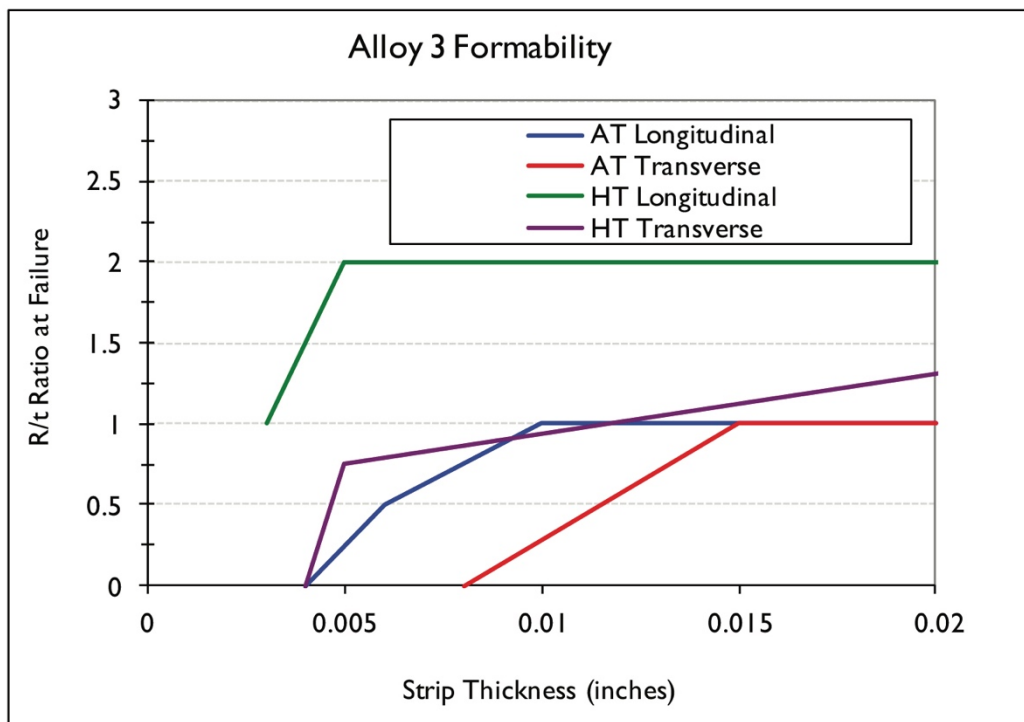
Typical Mechanical Properties**

Temper**	0.2% Offset Yield Strength		Ultimate Tensile Strength		Elongation***	Hardness	Formability (Minimum Bend Radius to Thickness Ratio for a 90° Bend)****	
	ksi	MPa	ksi	MPa			Percent	DPH
AT (TF00)	80 - 100	550 - 690	100 - 130	680 - 900	10 - 25	195 - 275	1.0	1.0
HT (TH04)	95 - 120	650 - 830	110 - 135	750 - 940	8 - 20	216 - 287	2.0	2.0

**Properties may vary by thickness.

***Percent elongation valid only for strip 0.004" (0.10 mm) and thicker.

****Formability numbers valid for strip 0.010" (0.25 mm) and thinner.



Forms Available

Alloy 3 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 0.125" (0.05 mm to 3.18 mm). It is also available in rod, wire, bar, tube, and plate.

Industry Standards and Specifications

UNS# C17510, ASTM B768, ASTM B534, EN 1652, EN 1654, EN 13148, EN 14436, MIL-C-81021, ISO 1187, ISO 1634

Related Information

Additional technical information on Alloy 3 strip may be obtained by phoning +1.800.375.4205.

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, berylliumsafety.eu and 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.

Data Sheet continued

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.