

BERYLLIUM COPPER 25



Beryllium Copper 25 (UNS C17200)

Beryllium Copper 25 is a Copper base alloy with the capability of being strengthened by precipitation heat treatment. The alloy furnishes the best combination of electrical conductivity, corrosion resistance and mechanical strength necessary for numerous electronic and electro-mechanical devices.

GENERAL INFORMATION

The alloy is quite satisfactory for fabrication with good formability and joining characteristics. Forming is readily accomplished from the annealed temper. Severe bending will be less successful from hard or heat treated tempers and requires large fold radius ratios.

Beryllium Copper 25 is able to be soldered, brazed, and welded by most standard techniques. The brazing temperature must be kept under 1450° F and cycle time minimized to avoid loss of heat treated strength. Heat

treating should be performed subsequent to welding to obtain uniform high strength. The alloy is not susceptible to an increase in magnetic attraction from plastic deformation during service such as occurs with the ferromagnetic stainless steels.

Thickness variation is directly related to a load deflection relationship in spring-type applications and is optimized with the extremely close tolerances available from HPM ($\pm 2\%$ at 0.005").

AVAILABILITY

Cu-Be 25 is available from Hamilton Precision Metals as strip product from 0.0005" to 0.020" (0.0127 mm to 0.508) in widths up to 12.0" (304.8 mm). It can be furnished in foil down to a thickness of 0.000100" (0.00254 mm) in widths of 4" (101.6 mm) maximum.

The material conforms to ASTM B194 and UNS C17200.



Technical Data

TYPICAL MECHANICAL PROPERTIES ¹				
	ANNEALED	ANNEALED HEAT TREATED	COLD ROLLED	COLD ROLLED HEAT TREATED
Ultimate Tensile Strength	70,000 PSI	175,000 PSI	120,000 PSI	210,000 PSI
Yield Strength (0.2% Offset)	30,000 PSI	150,000 PSI	110,000 PSI	200,000 PSI
Elongation in 2" *	35%	3%	2%	1%
Modulus of Elasticity (Tension)	18.5 X 10 ⁶ PSI	-	-	-
Poisson's Ratio	0.285	-	-	-

*The measured elongation will be less as thickness decreases to 0.002" and less.

¹ These values may be adjusted by control of process variables – HPM can also supply the standard mill hardened tempers which normally benefit both distortion and ductility.

NOMINAL COMPOSITION	
Beryllium	1.9%
Cobalt	0.20%
Copper	Balance

PHYSICAL PROPERTIES ²	
Density	0.298 lbs./cu.in.
Melting Point (Approx.)	865 °C
Electrical Resistivity @ R.T.	7.81 Microhm · cm
Electrical Conductivity @ R.T. -Heat Treated	0.128 Megmho · cm
Thermal Expansion Coefficient (20° to 200°C)	17.5 x 10 ⁻⁶ /°C
Thermal Conductivity @ R.T.	105 W/m · K
Magnetic Attraction	None
Magnetic Permeability	1.0006

² Typical values to guide alloy selection but are not a guarantee of minimum or maximum.

Disclaimer: The information contained within this data sheet is for guidance only and is not intended for warranty of individual application - express or implied.