



Hamilton Precision Metals
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TECHNICAL DATA SHEET

BERYLLIUM COPPER 25

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.

NOMINAL COMPOSITION:

Beryllium	1.9%	Copper	Balance
Cobalt	.20%		

TYPICAL MECHANICAL PROPERTIES:¹

	<u>ANNEALED</u>	<u>ANNEALED</u> <u>HEAT</u> <u>TREATED</u>	<u>COLD</u> <u>ROLLED</u>	<u>COLD ROLLED</u> <u>HEAT</u> <u>TREATED</u>
Ultimate Tensile Strength	70,000 PSI	175,000 PSI	120,000 PSI	210,000 PSI
Yield Strength (.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 Ratio	0.285			

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

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PHYSICAL PROPERTIES:²

Density.....	0.298 lbs./cu.in.
Melting Point (Approx.).....	865° C
Electrical Resistivity @ R.T.	7.81Microhm· cm
Electrical Conductivity @ R.T. –Heat Treated.....	.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

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 .005”).

AVAILABILITY:

Beryllium Copper 25 is available from Hamilton Precision Metals as strip product from .0005” to .020” in widths up to 12.0” It can be furnished in foil down to a thickness of .000100” in widths of 4” maximum. The material conforms to ASTM B194 and UNS C17200.

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