



Hamilton Precision Metals
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TECHNICAL DATA SHEET

PHOSPHOR BRONZE A

Phosphor Bronze A is a Copper base spring material with a good combination of strength, formability, and corrosion resistance. The material is suitable for use in certain contact springs and diaphragms.

NOMINAL COMPOSITION:

Phosphorus	.2%
Tin	5.0%
Copper	Balance

TYPICAL MECHANICAL PROPERTIES:¹

	<u>ANNEALED</u>	<u>COLD ROLLED</u>
Ultimate Tensile Strength	50,000 PSI	110,000 PSI
Yield Strength (.2% Offset)	20,000 PSI	105,000 PSI
Elongation in 2" *	45%	2%
Modulus of Elasticity (Tension)	16 x 10 ⁺⁶ PSI	
Poisson's Ratio	0.33	

*The measured elongation will be less as thickness decreases to .002" and less.

¹ These values may be adjusted by control of process variables – consult HPM for desired values.

PHOSPHOR BRONZE A

PHYSICAL PROPERTIES:²

Density	-	0.320 lbs/cu.in.
Melting Point (Approx.)	-	950°C
Electrical Resistivity @ R.T.	-	11.5 Microhm· cm
Thermal Expansion Coefficient (20° to 300°C)	-	17.8 x 10 ⁻⁶ /°C
Thermal Conductivity @ R.T.	-	69.2 W/m· K
Magnetic Attraction	-	None

GENERAL INFORMATION:

The alloy has good formability up to moderate strength. It can be soldered, silver brazed, and resistance welded.

AVAILABILITY:

Phosphor Bronze A is available from Hamilton Precision Metals as strip products in thicknesses from .001” to .020” in widths up to 12.0” . The material conforms to ASTM B 103 and UNS C 51000.

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