

# PHOSPHOR BRONZE A



## PHOSPHOR BRONZE A (UNS C51000)

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.

### 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 0.001" to 0.020" (0.0254 mm to 0.508 mm) in widths up to 12.0" (304.8 mm). The material conforms to ASTM B 103 and UNS C51000.



## Technical Data

TYPICAL MECHANICAL PROPERTIES <sup>1</sup>		
	ANNEALED	COLD ROLLED
Ultimate Tensile Strength	50,000 PSI	110,000 PSI
Yield Strength (0.2% Offset)	20,000 PSI	105,000 PSI
Elongation in 2" *	45%	2%
Modulus of Elasticity (Tension)	16 X 10 <sup>6</sup> PSI	-
Poisson's Ratio	0.33	-

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

<sup>1</sup> These values may be adjusted by control of process variables - consult HPM for desired values.

NOMINAL COMPOSITION	
Phosphorus	0.2%
Tin	5.0%
Copper	Balance

PHYSICAL PROPERTIES <sup>2</sup>	
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 <sup>6</sup> /°C
Thermal Conductivity @ R.T.	69.2 W/m · K
Magnetic Attraction	None

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