

MatWeb, The Online Materials Database**Phosphor bronze 5% Sn, UNS C51000, H02 Temper wire****Subcategory:** Bronze; Copper Alloy; Metal; Nonferrous Metal**Key Words:** CDA 510, PB102, ISO CuSn5

Component	Wt. %
Cu	93.6 - 95.6
Fe	Max 0.1
P	0.03 - 0.35
Pb	Max 0.05
Sn	4.2 - 5.8
Zn	Max 0.3

Material Notes:

Good to excellent corrosion resistance. Excellent cold workability. Fabricated by blanking, drawing, bending, heading, and upsetting, shearing, roll threading, knurling and stamping.

Applications: bellows, bourdon tubing, clutch discs, cotter pins, diaphragms, fasteners, lock washers, wire brushes, chemical hardware, textile machinery, welding rod.

Trace content of Phosphorus.

Test specimen: wire - 2mm diameter.

Physical Properties	Metric	English	Comments
Density	8.86 g/cc	0.32 lb/in ³	at 20°C (68°F)

Mechanical Properties

Tensile Strength, Ultimate	585 MPa	84800 psi	
Tensile Strength, Yield	550 MPa	79800 psi	0.5% extension under load
Elongation at Break	8 %	8 %	In 50 mm

Modulus of Elasticity	110 GPa	16000 ksi	
Poisson's Ratio	0.341	0.341	
Machinability	20 %	20 %	UNS C36000 (free-cutting brass) = 100%
Shear Modulus	41 GPa	5950 ksi	

Electrical Properties

Electrical Resistivity	8.7e-006 ohm-cm	8.7e-006 ohm-cm	at 20°C (68°F)
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Thermal Properties

CTE, linear 250°C	17.8 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	9.89 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	from 20-300°C (68-570°F)
Specific Heat Capacity	0.38 J/g-°C	0.0908 BTU/lb-°F	
Thermal Conductivity	84 W/m-K	583 BTU-in/hr-ft ² -°F	at 20°C (68°F)
Melting Point	975 - 1060 °C	1790 - 1940 °F	
Solidus	975 °C	1790 °F	
Liquidus	1060 °C	1940 °F	

Processing Properties

Annealing Temperature	475 - 675 °C	887 - 1250 °F
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