

MatWeb, The Online Materials Database**Phosphor bronze 8% C, UNS C52100, H02 Temper flat products****Subcategory:** Bronze; Copper Alloy; Metal; Nonferrous Metal**Key Words:** CDA 521, PB104, ISO CuSn8P

Component	Wt. %
Cu	90.5 - 92.8
Fe	Max 0.1
P	0.03 - 0.35
Pb	Max 0.05
Sn	7 - 9
Zn	Max 0.2

Material Notes:

Good to excellent corrosion resistance. Good cold workability for blanking, drawing, forming and bending, shearing and stamping.

Applications: more severe service conditions than C51000.

Trace content of Phosphorus.

Test specimen: flat products - 1mm thickness.

Physical Properties	Metric	English	Comments
Density	8.8 g/cc	0.318 lb/in ³	at 20°C (68°F)

Mechanical Properties

Hardness, Rockwell B	84	84	
Hardness, HR30T	73	73	
Tensile Strength, Ultimate	525 MPa	76100 psi	
Tensile Strength, Yield	380 MPa	55100 psi	0.5% extension under load

Elongation at Break	32 %	32 %	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	1.33e-005 ohm-cm	1.33e-005 ohm-cm	at 20°C (68°F)
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Thermal Properties

CTE, linear 250°C	18.2 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	10.1 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	from 20-300°C (68-570°F)
Specific Heat Capacity	0.38 J/g-°C	0.0908 BTU/lb-°F	
Thermal Conductivity	62 W/m-K	430 BTU-in/hr-ft ² -°F	at 20°C (68°F)
Melting Point	880 - 1025 °C	1620 - 1880 °F	
Solidus	880 °C	1620 °F	
Liquidus	1025 °C	1880 °F	

Processing Properties

Annealing Temperature	475 - 675 °C	887 - 1250 °F
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References are available for this material.

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