NWB®

High Performance Bearing Technology

C51000 PHOSPHOR BRONZE (5% A)



C51000 Phosphor Bronze alloy is a cold worked bronze which possess a higher yield strength than is readily available in most cast bronze products. Typical applications for C51000 phosphor bronze include bearings, bushings, gears, pinions, shafts, thrust washers and valve parts. C51000 Phosphor bronze can be readily brazed or soldered. Capacity for being cold worked is good.

Alternative Specifications

ASTM B-139, B-103, B-100
ASTM F-468
AMS 4625
SAE J463, J461

Physical Properties

Melting Point - Liquidus	1920 F
Melting Point - Solidus	1750 F
Density	0.32 lb/in^3 at 68 F
Specific Gravity	8.86
Electrical Resistivity	69.1 ohms-cmil/ft at 68 F
Electrical Conductivity	15 %IACS at 68 F
Thermal Conductivity	40.0 Btu · ft/(hr · ft2·°F) at 68F
Coefficient of Thermal Expansion	9.9 ·10^{-6} per °F (68-572 F)
Modulus of Elasticity in Tension	16000 ksi
Modulus of Rigidity	6000 ksi
Machinability Rating	20%

Room Temp Tensile & Hardness Data

TEMPER	SECTION SIZE (INCHES)	TENSILE (KSI) MIN	ELONGATION IN HD MIN
H04 Hard	1/4" - 1/2"	70	13%
	Over 1/2" - 1"	60	15%
	Over 1"	55	18%

Typical Uses

Architecture
Bridge Bearing Plates

Electrical
Switch Parts, Electromechanical Spring Components, Resistance Wire, Electrical Flexing Contact Blades, Electrical Connectors, Electronic Connectors, Wire Brushes, Electronic and Precision Instrument Parts, Fuse Clips

Fasteners
Lock Washers, Fasteners, Cotter Pins

Other Industrial
Bellows, Textile Machinery, Perforated Sheets, Chemical Hardware, Truss Wire, Springs, Sleeve Bushings, Diaphragms, Clutch Disks, Bourdon Tubes, Beater Bar, Welding Rods, Pressure Responsive Elements

Chemical Composition

	Cu	Fe	Pb	P	Sn	Zn
min/max	Rem	.10	.05	.03-.35	4.2-5.8	.30
nominal	94.8	-	-	.20	5.0	-

Note: Cu + Sum of Named Elements, 99.5% min.

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