

LEADED TIN BRONZE C93800

CDA NUMBER	C93800	
Common Name	Anti-Acid Metal	
COMPOSITION PERCENT	Min	Max
Copper (Cu)	75	79
Tin (Sn)	6.3	7.5
Lead (Pb)	13	16
Zinc (Zn)		0.8
Iron (Fe)		0.15
Antimony (SB)		0.8
Nickel (Ni)		1
Sulphur (S)		0.08
Phosphorous (P)		0.05
Aluminum (Al)		0.005
Silicon (Si)		0.005
Cu + Sum of Named Elements, 99.0% min.		
Ni value includes Co.		
For continuous castings, P shall be 1.5%, max.		
NEAREST APPLICABLE CASTING STANDARDS		
ASTM (B Series)	B584	
SAE (J Series)	461, 462 (was 67)	
Federal (QQ-C- Series)	390	
Military (Mil-C- Series)		
TYPICAL PROPERTIES	Typ	Min
Tensile Strength (ksi)	32	26
Yield Strength (.5% extension under load) (ksi)	16	14
Elongation (2 inch gauge length) (%)	20	12
Reduction of Area (%)	20	
Proportional Limit (ksi)	4	
Modulus of Elasticity (ksi)	10500	
Hardness (Brinell) (HB @ 500kg)	58	
Machinability (% of free cutting brass)	80	
Fatigue Strength (10 ⁸ cycles) (ksi)	10	
Impact Strength (Charpy) (ft-lb)	5	
Impact Strength (Izod) (ft-lb)	5	
Shear Strength (ksi)	15	
Compressive Strength (0.001 in. set/in.) (ksi)	12	
Compressive Strength (0.010 in. set/in.) (ksi)		
Compressive Strength (0.100 in. set/in.) (ksi)	38	
Creep Strength (0.00001% per hour) (ksi)		
Melting Range (Liquidus-Solidus)(F)	1570-1750	
Coefficient of Thermal Expansion (per F @ 68-400F)	0.0000102	
Thermal Conductivity (Btu/sq.ft/ft.hr/F @ 68F)	30	
Specific Heat (Btu/lb/F @ 68F)	0.09	
Electrical Conductivity (% IACS @ 68F)	11.5	
Density (lb/cu.in. @ 68F)	0.334	
Pouring Temperature (Light Castings) (F)	2000-2250	
Pouring Temperature (Heavy Castings) (F)	1900-2100	
Patternmakers Shrinkage (in/ft)	5/32	
Drossing	Low	
Gassing	Medium	
Fluidity	High	
Shrinkage	Low	
Casting Yield	High	
Corrosion Resistance: Excellent for hydrocarbons, seawater, food products, and some acids.		
Wear Resistance: Very Good		
Applications: C93800: Bearings for general service and moderate pressure, acid mine waters pump parts. parts.		

Always use the design principles outlined on page two of this information sheet or at our website.

Consult your foundry early in the design process.

This is a high lead alloy. St Paul Brass and Aluminum does not offer it. We can offer low lead alternatives.



St. Paul
Brass and Aluminum
Foundry

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