

LEADED RED BRASS C83800

CDA NUMBER	C83800	
Common Name	Commercial Red	
COMPOSITION PERCENT	Min	Max
Copper (Cu)	82	83.8
Tin (Sn)	3.3	4.2
Lead (Pb)	5.0	7.0
Zinc (Zn)	5.0	8.0
Iron (Fe)		0.3
Antimony (SB)		0.25
Nickel (Ni)		1
Sulphur (S)		0.08
Phosphorous (P)		0.03
Aluminum (Al)		0.005
Silicon (Si)		0.005
Maganese (Mn)		
Cu + Sum of Named Elements, 99.3% min		
In determining Cu min., Cu may be calculated as Cu + Ni.		
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	
Federal (QQ-C- Series)	390	
Military (Mil-C- Series)		
TYPICAL PROPERTIES	Typ	Min
Tensile Strength (ksi)	35	29
Yield Strength (.5% extension under load) (ksi)	16	12
Elongation (2 inch gauge length) (%)	25	15
Reduction of Area (%)	25	
Proportional Limit (ksi)		
Modulus of Elasticity (ksi)	13300	
Hardness (Brinell) (HB @ 500kg)	60	
Machinability (% of free cutting brass)	90	
Fatigue Strength (10 ⁸ cycles) (ksi)		
Impact Strength (Charpy) (ft-lb)		
Impact Strength (Izod) (ft-lb)	8	
Shear Strength (ksi)		
Compressive Strength (0.001 in. set/in.) (ksi)	12	
Compressive Strength (0.010 in. set/in.) (ksi)	29	
Compressive Strength (0.100 in. set/in.) (ksi)		
Creep Strength (0.00001% per hour) (ksi)		
Melting Range (Liquidus-Solidus)(F)	1550-1850	
Coefficient of Thermal Expansion (per F @ 68-400F)	0.000010	
Thermal Conductivity (Btu/sq.ft/ft./hr/F @ 68F)	41.9	
Specific Heat (Btu/lb/F @ 68F)	0.09	
Electrical Conductivity (% IACS @ 68F)	15	
Density (lb/cu.in. @ 68F)	0.312	
Pouring Temperature (Light Castings) (F)	2100-2300	
Pouring Temperature (Heavy Castings) (F)	1950-2150	
Patternmakers Shrinkage (in/ft)	3/16	
Drossing	Low	
Gassing	Medium	
Fluidity	Medium	
Shrinkage	Medium	
Corrosion Resistance: Very good for hydrocarbons, and general corrosion.		
Applications: Low-pressure valve bodies, water pump parts and impellers, electrical hardware, boat hardware, plumbing goods, valve trim, fire equipment, small gears, ornamental fixtures, hydraulic pressure castings, injectors, gas and vapor valves and fittings, hydraulic-pressure castings.		

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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