

LEADED SEMI RED BRASS C84400

CDA NUMBER	C84400	
Common Name	81-3-7-9	
COMPOSITION PERCENT	Min	Max
Copper (Cu)	78	82
Tin (Sn)	2.3	3.5
Lead (Pb)	6	8
Zinc (Zn)	7	10
Iron (Fe)		0.4
Antimony (SB)		0.25
Nickel (Ni)		1
Sulphur (S)		0.08
Phosphorous (P)		0.02
Aluminum (Al)		0.005
Silicon (Si)		0.005
Maganese (Mn)		
Other (Total)		
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)		
Federal (QQ-C- Series)	390	
Military (Mil-C- Series)		
TYPICAL PROPERTIES	Typ	Min
Tensile Strength (ksi)	34	29
Yield Strength (.5% extension under load) (ksi)	14	13
Elongation (2 inch gauge length) (%)	28	18
Reduction of Area (%)	25	
Proportional Limit (ksi)		
Modulus of Elasticity (ksi)	13000	
Hardness (Brinell) (HB @ 500kg)	55	
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)		
Compressive Strength (0.010 in. set/in.) (ksi)		
Compressive Strength (0.100 in. set/in.) (ksi)		
Creep Strength (0.00001% per hour) (ksi)		
Melting Range (Liquidus-Solidus)(F)	1540-1840	
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)	16.4	
Density (lb/cu.in. @ 68F)	0.314	
Pouring Temperature (Light Castings) (F)	2100-2300	
Pouring Temperature (Heavy Castings) (F)	1950-2150	
Patternmakers Shrinkage (in/ft)	3/16	
Drossing	Medium	
Gassing	Medium	
Fluidity	Medium	
Corrosion Resistance: Very good in hydrocarbons and for general corrosion.		
Applications: General hardware fittings, low pressure valves and fittings, ornamental castings, plumbing supplies and fixtures, stops and wastes, air and gas fittings, pump bodies.		

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
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Foundry

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Use Good Design Principles

1. St. Paul Brass and Aluminum Foundry is providing this information on metal characteristics for informational purposes only. Before making a final decision on alloy selection consider the following and all other appropriate design and specification principles. Please note that this is not an exhaustive list.
2. Consult the appropriate specification from an accredited specifying body (ASTM, SAE, Federal or Military) to determine current minimum values of this alloy.
3. Use appropriate design safety factors.
4. Use Failure Modes and Effects Analysis to help identify possible weaknesses in designs and specifications.
5. Use computerized stress analysis tools.
6. Use appropriate certification requirements for your casting suppliers. These may include test bars, chemical certifications, radiography, dye penetrant or other non-destructive testing methods.
7. Test your design to failure in a controlled environment. Then test it to failure in a simulation of its end use.
8. You and you alone are responsible for the suitability of your design and the materials that you select.
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