

C84400

Cast

Product Description:	Leaded Semi-Red Brass
Solids:	½" to 13" O.D.
Tubes:	1" to 16" O.D.
Rectangles:	Up to 20"
Standard Lengths:	144"
Shape/Form:	semi-finished, mill stock or near-net shapes, anode, bar stock, billet/bloom, squares, hex, plate, profile or structural shape, flats/rectangular bar

Typical Uses

Architecture	ornamental fixtures
Builders Hardware	dead bolt locks, cases for dead bolt locks, door hardware for prisons, hardware
Building	cooling equipment, heating equipment
Consumer	musical instruments
Electrical	electrical equipment
Industrial	valve bodies for the water industry, valves for water meters, valves, valve seat, low pressure fittings, pump fixtures
Marine	marine hardware, boat parts, nuts for transducers
Plumbing	pipe fittings, fixtures

Similar or Equivalent Specification

CDA	ASTM	Asarcon	SAE	AMS	Federal	Military	Other
C84400	B505 B505M B145-5A	37			QQ-C-390, B2 QQ-B-1005, COMP 11	MIL-B11553, COMP 11	Valve Metal

Chemical Composition

Cu% ¹	Pb%	Sn%	Zn%	Fe%	P% ²	Ni% ³	Al%	S%	Sb%	Si%
78.00- 82.00	6.00- 8.00	2.30- 3.50	7.00- 10.00	0.40	0.02	1.00	0.005	0.08	0.25	0.005

Chemical Composition according to ASTM B505/B505M-18

¹In determining Cu min., Cu may be calculated as Cu + Ni.

²For continuous castings, P shall be 1.5% max.

³Ni value includes Co.

Note: Cu + Sum of Named Elements, 99.3% min. Single values represent maximums.



Machinability

C84400 continued

Copper Alloy UNS No.	Machinability Rating	Density (lb/cu in at 68° F)
C84400	90	0.314

Mechanical Properties

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Brinell Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical BHN	
30	207	15	103	16	55 (500 kg)	

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1840° F	1004° C
Melting Point – Solidus	1549° F	843° C
Density	0.314 lb/in ³ at 68° F	8.69 gm/cm ³ at 20° C
Specific Gravity	8.69	8.69
Electrical Conductivity	16.4% IACS at 68° F	0.095 MegaSiemens/cm at 20° C
Thermal Conductivity	41.8 Btu · ft/(hr · ft ² · °F) at 68° F	72.4 W/m at 20° C
Coefficient of Thermal Expansion	10 · 10 ⁻⁶ per °F (68°-572° F)	17.3 · 10 ⁻⁶ per °C (20°-300° C)
Specific Heat Capacity	0.09 Btu/lb/°F at 68° F	377.1 J/kg at 293° C
Modulus of Elasticity in Tension	13000 ksi	89600 MPa
Magnetic Permeability	1	1

Physical Properties provided by CDA

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Fair

Fabrication Properties provided by CDA

Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Stress Temperature	500	260
Solution Minimum		
Solution Maximum		
Solution Time	0.0	
Solution Medium		
Precipitation Value		
Precipitation Time		
Precipitation Medium		
Annealing Minimum		
Annealing Maximum		
Annealing Time		
Hot Treatment Minimum		
Hot Treatment Maximum		

Thermal Properties provided by CDA

