

# C84400

Cast

<b>Product Description:</b>	Leaded Semi-Red Brass
<b>Solids:</b>	½" to 13" OD
<b>Tubes:</b>	1" to 16" OD
<b>Rectangles:</b>	Up to 20"
<b>Standard Lengths:</b>	144"
<b>Shape/Form:</b>	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

<b>Architecture</b>	ornamental fixtures
<b>Builders Hardware</b>	dead bolt locks, cases for dead bolt locks, door hardware for prisons, hardware
<b>Building</b>	cooling equipment, heating equipment
<b>Consumer</b>	musical instruments
<b>Electrical</b>	electrical equipment
<b>Industrial</b>	valve bodies for the water industry, valves for water meters, valves, valve seat, low pressure fittings, pump fixtures
<b>Marine</b>	marine hardware, boat parts, nuts for transducers
<b>Plumbing</b>	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% <sup>1</sup>	Pb%	Sn%	Zn%	Fe%	P% <sup>2</sup>	Ni% <sup>3</sup>	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-14

<sup>1</sup>In determining Cu min., Cu may be calculated as Cu + Ni.

<sup>2</sup>For continuous castings, P shall be 1.5% max.

<sup>3</sup>Ni 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-14

## Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1840° F	1004° C
Melting Point – Solidus	1549° F	843° C
Density	0.314 lb/in <sup>3</sup> at 68° F	8.69 gm/cm <sup>3</sup> 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 <sup>2</sup> · °F) at 68° F	72.4 W/m at 20° C
Coefficient of Thermal Expansion	10 · 10 <sup>-6</sup> per °F (68°-572° F)	17.3 · 10 <sup>-6</sup> 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

