

# C84400

Cast

<b>Product Description:</b>	Leaded Semi-Red Brass
<b>Solids:</b>	½" to 13" O.D.
<b>Tubes:</b>	1" to 16" O.D.
<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>	cases for dead bolt locks, 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>	low-pressure fittings, pump fixtures, valve bodies for the water industry, valve seat, valves, valves for water meters
<b>Marine</b>	boat parts, marine hardware, nuts for transducers
<b>Plumbing</b>	fixtures, pipe fittings

## Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C84400	B505 B505M B271 B271M B584			WW-U-516		Valve Metal

## Chemical Composition

Cu% <sup>1</sup>	Pb%	Sn%	Zn%	Fe%	P%	Ni% <sup>1,2</sup>	Al%	S%	Sb%	Si%
78.00- 82.00	6.00- 8.00	2.30- 3.50	7.00- 10.00	0.40	1.50	1.00	0.005	0.08	0.25	0.005

Chemical Composition according to ASTM B505/B505M-18

<sup>1</sup>In determining Cu min., Cu may be calculated as Cu + Ni.  
Note: Single values represent maximums.

<sup>2</sup>Ni value includes Co.



## Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in <sup>3</sup> at 68 °F)
C84400	90	0.314

## Mechanical Properties

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Brinell Hardness (500 kg load)	Remarks
ksi	MPa	ksi	MPa	%	typical BHN	
30	207	15	103	16	55	

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 <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/sq ft/ft hr/°F at 68 °F	72.4 W/m at 20 °C
Coefficient of Thermal Expansion 68-572	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 20 °C
Modulus of Elasticity in Tension	13000 ksi	89600 MPa
Magnetic Permeability	1	1

Physical Properties provided by CDA

## Fabrication Properties

Technique	Suitability
Soldering	Excellent
Brazing*	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Fair
Machinability Rating	90

Fabrication Properties provided by CDA

\*Since brazing is performed within the hot-short range, strain must be avoided during brazing and cooling.

## Thermal Properties

Treatment	Value*	Time**
Stress Relief	500	
Solution Treatment		0

Thermal Properties provided by CDA

\*Temperature is measured in Fahrenheit. \*\*For Stress Relief, Solution Treatment and Annealing - Time is measured in hours/inch of thickness. For Precipitation Heat Treatment - Time is measured in hours.