

C84200

Continuous 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

Builders Hardware	general hardware
Industrial	bushings, fittings for oil lines, low-pressure valves, small gears, small pump castings, plumbing
Plumbing	couplings, elbows, pipe fittings, plugs, tees, unions

Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C84200	B505 B505M			WW-P-460		

Chemical Composition

Cu% ¹	Pb%	Sn%	Zn%	Fe%	P%	Ni% ^{1,2}	Al%	S%	Sb%	Si%
78.00- 82.00	2.00- 3.00	4.00- 6.00	10.00- 16.00	0.40	1.50	0.80	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. ²Ni value includes Co.
Note: Single values represent maximums.

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in ³ at 68 ° F)
C84200	80	0.311

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	
32	221	16	110	13	60	

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1820 °F	993 °C
Melting Point – Solidus	1540 °F	838 °C
Density	0.311 lb/in ³ at 68 °F	8.61 gm/cm ³ at 20 °C
Specific Gravity	8.61	8.61
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 68-392	10 · 10 ⁻⁶ per °F (68-392 °F)	17.3 · 10 ⁻⁶ per °C (20-200 °C)
Specific Heat Capacity	0.09 Btu/lb/°F at 68 °F	377.1 J/kg at 20 °C
Modulus of Elasticity in Tension	14000 ksi	96500 MPa

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	80

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.