C83800

Continuous Cast

Product Description:	Leaded 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	hardware
Electrical	electrical components, switches
Industrial	air/gas/water fittings, bushings, pump fixtures, railroad catenary fittings, valves
Plumbing	plumbing fixtures

Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C83800	B505 B505M B271 B271M B584	J461 J462		WW-U-516		Hydraulic Bronze

Chemical Composition

Cu%[1]	Pb%	Sn%	Zn%	Fe%	P%	Ni%[1,2]	Al%	S%	Sb%	Si%
82.00- 83.80	5.00- 7.00	3.30- 4.20	5.00- 8.00	0.30	1.50	1.00	0.005	0.08	0.25	0.005

Chemical Composition according to ASTM B505/B505M-18

[1]In determining Cu min., Cu may be calculated as Cu + Ni. [2]Ni value includes Co.
Note: Single values represent maximums.

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in^3 at 68 ˚F)
C83800	90	0.312

CONCAST METAL PRODUCTS CO.

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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	97	16	60	

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1840 ˚F	1004 ˚C
Melting Point – Solidus	1550 ˚F	843 ˚C
Density	0.312 lb/in^3 at 68 ˚F	8.64 gm/cm^3 at 20 ˚C
Specific Gravity	8.64	8.64
Electrical Conductivity	15% IACS at 68 ˚F	0.087 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
Modulas of Elasticity in Tension	13300 ksi	91700 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

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.