

C83600

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

Architecture	ornamental fixtures
Builders Hardware	hardware
Building	cooling equipment, heating equipment, lightning protection, trowels for cement working
Electrical	electrical equipment, electrical hardware, switches
Fasteners	large hold-down screws
Industrial	air actuators, bearing segments for steel industry, bearings, bushings, couplings, furnaces, handles for dental equipment, impellers, low pressure valves, pressure blocks for steel industry, printing presses, pump fixtures, pump parts, pumps, rings, small gears, transducer housings, valve bodies, valve bodies for the water meter industry, valves, valves for the water meter industry
Marine	marine products, parts for boats
Plumbing	faucets, fixtures, pipe fittings

Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C83600	B505 B505M B271 B271M B62	J461 J462	4855	WW-P-460 WW-U-516	MIL-C-11866 MIL-V-18436	Ounce Metal

Chemical Composition

Cu% ¹	Pb%	Sn%	Zn%	Fe%	P%	Ni% ^{1,2}	Al%	S%	Sb%	Si%
84.00- 86.00	4.00- 6.00	4.00- 6.00	4.00- 6.00	0.30	1.50	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.
Note: Single values represent maximums.

²Ni value includes Co.



Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in ³ at 68 °F)
C83600	84	0.318

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	
36	248	19	131	15	60	

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1850 °F	1010 °C
Melting Point – Solidus	1570 °F	854 °C
Density	0.318 lb/in ³ at 68 °F	8.83 gm/cm ³ at 20 °C
Specific Gravity	8.83	8.83
Electrical Conductivity	15% IACS at 68 °F	0.087 MegaSiemens/cm at 20 °C
Thermal Conductivity	41.6 Btu/sq ft/ft hr/°F at 68 °F	72 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	0.090 Btu/lb/°F at 68 °F	377.1 J/kg at 20 °C
Modulus of Elasticity in Tension	13500 ksi	93100 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	84

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.