C84400

Continuous cast

Product description	Leaded semi-red brass
Solids	1/2" 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

Similiar or equivalent specification

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

Chemical composition

Cu (%)[1]	Pb (%)	Sn (%)	Zn (%)	Fe (%)	P (%)	Ni (%)[1,2]	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-23

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

Typical uses

Architecture

Ornamental fixtures

Builders hardware

Cases for dead bolt locks, dead bolt locks, door hardware for prisons, hardware

Building

Cooling equipment, heating equipment

Consumer

Musical instruments

Electrical

Electrical equipment

Industrial

Low-pressure fittings, pump fixtures, valve bodies for the water industry, valve seat, valves, valves for water meters

Marine

Boat parts, marine hardware, nuts for transducers

Plumbing

Fixtures, pipe fittings

Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in³ 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-23

Physical properties

	US customary	Metric
Melting point – liquidus	1840 °F	1004 °C
Melting point – solidus	1549 °F	843 °C
Density	0.314 lb/in³ at 68 °F	8.69 gm/cm³ 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^{-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	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.*

Casting characteristics

Casting attribute	Level
Casting yield	High
Drossing	Medium
Effect of section size	High
Fluidity	Medium
Gassing	Medium
Patternmakers shrinkage (inches per foot)	3/16
Shrinkage in solidification	Medium

Casting characteristics provided by CDA