

C93400

Continuous cast

Product description	High-leaded tin bronze
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

Typical uses

Fasteners

Washers

Industrial

Bearings, bushings, corrosion-resistant castings, pump impellers, slide bars, thrust bearings

Similar or equivalent specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C93400	B505 B505M	J461 J462		QQ-C-390, E8 QQ-B-1005, Comp 8	MIL-B-11553, Comp 8	

Chemical composition

Cu (%) ¹	Pb (%)	Sn (%)	Zn (%)	Fe (%)	P (%)	Ni (%) ^{1,2}	Al (%)	S (%)	Sb (%)	Si (%)
82.00-85.00	7.00-9.00	7.00-9.00	0.80	0.20	1.50	1.00	0.005	0.08	0.50	0.005

Chemical composition according to ASTM B505/B505M-23

¹In determining Cu min., Cu may be calculated as Cu + Ni. ²Ni value includes Co.
Note: Cu + sum of named elements, 99.0% min. Single values represent maximums.

Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in ³ at 68° F)
C93400	70	0.32

C93400 continued

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	
34	234	20	138	8	60	

Mechanical properties according to ASTM B505/B505M-23

Physical properties

	US customary	Metric
Density	0.32 lb/in ³ at 68 °F	8.86 gm/cm ³ at 20 °C
Specific gravity	8.86	8.86
Electrical conductivity	12% IACS at 68 °F	0.07 MegaSiemens/cm at 20 °C
Thermal conductivity	33.6 Btu/sq ft/ft hr/ °F at 68 °F	58.2 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	11000 ksi	75800 MPa

Physical properties provided by CDA

Fabrication properties

Technique	Suitability
Soldering	Good
Brazing*	Good
Oxyacetylene welding	Not recommended
Gas shielded arc welding	Not recommended
Coated metal arc welding	Not recommended
Machinability rating	70

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	Low
Effect of section size	Medium
Fluidity	High
Gassing	Medium
Patternmakers shrinkage (inches per foot)	3/16
Shrinkage in solidification	Low

Casting characteristics provided by CDA