

C93600

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

Industrial

Backs for lined bearings, bushings for corrosion/lubrication/pressure, cam bushings for diesel engines, crankshaft main bearings, deep well pump line shaft bearings, electric motor bearings, flow monitor valves, guide bushings for piston rods, guide bushings for valves, hydraulic gland seals, locomotive bearing parts, main bearings for presses, piston pin bearings, pump sleeves, rod bushings, rolling mill bearings, seals, sleeve bushings (for cranes, etc.), spacer bushings (for pumps, etc.), steel mill bushings, wrist pin bushings

Similar or equivalent specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C93600	B505 B505M					

Chemical composition

Cu (%)	Pb (%)	Sn (%)	Zn (%)	Fe (%)	P (%)	Ni (%) ¹	Al (%)	S (%)	Sb (%)	Si (%)
79.00-83.00	11.00-13.00	6.00-8.00	1.00	0.20	1.50	1.00	0.005	0.08	0.55	0.005

Chemical composition according to ASTM B505/B505M-23

¹Ni value includes Co.

Note: Cu + sum of named elements, 99.3% min. Single values represent maximums.

Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in ³ at 68 ° F)
C93600	80	0.325

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	
33	227	20	138	10	65	

Mechanical properties according to ASTM B505/B505M-23

Physical properties

	US customary	Metric
Melting point – liquidus	1720 °F	938 °C
Melting point – solidus	1550 °F	843 °C
Density	0.325 lb/in ³ at 68 °F	9 gm/cm ³ at 20 °C
Specific gravity	9	9
Electrical conductivity	11% IACS at 68 °F	0.064 MegaSiemens/cm at 20 °C
Thermal conductivity	28.5 Btu/sq ft/ft hr/°F at 68 °F	49.36 W/m at 20 °C
Coefficient of thermal expansion 68-392	10.3 · 10 ⁻⁶ per °F (68-392 °F)	17.8 · 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	96516 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	80

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	Low
Fluidity	High
Gassing	Medium
Patternmakers shrinkage (inches per foot)	1/8
Shrinkage in solidification	Low

Casting characteristics provided by CDA