

C92300

Continuous cast

Product description	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

Builders hardware

Structural castings

Fasteners

Nuts

Industrial

Bearings, bushings, gears, high pressure hydraulic equipment, piston rings, pump impellers, pump parts, valve bodies

Plumbing

High-pressure steam equipment

Similar or equivalent specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C92300	B505 B505M B143-2B	621 J461 J462		QQ-C-390, D3 QQ-B-1005, Comp 6	MIL-B-11553, Comp 6	

Chemical composition

Cu (%) ¹	Pb (%)	Sn (%)	Zn (%)	Fe (%)	P (%)	Ni (%) ^{1,2}	Al (%)	S (%)	Sb (%)	Si (%)
85.00-89.00	0.30-1.00	7.50-9.00	2.50-5.00	0.25	1.50	1.00	0.005	0.05	0.25	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, 99.3% min. Single values represent maximums.

C92300 continued

Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in ³ at 68 °F)
C92300	42	0.317

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	
40	276	19	131	16	70	

Mechanical properties according to ASTM B505/B505M-23

Physical properties

	US customary	Metric
Melting point – liquidus	1830 °F	999 °C
Melting point – solidus	1570 °F	854 °C
Density	0.317 lb/in ³ at 68 °F	8.77 gm/cm ³ at 20 °C
Specific gravity	8.77	8.77
Electrical conductivity	12% IACS at 68 °F	0.07 MegaSiemens/cm at 20 °C
Thermal conductivity	43.2 Btu/sq ft/ft hr/°F at 68 °F	74.8 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	14000 ksi	96500 MPa
Incipient melting	600 °F	316 °C

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	Not recommended
Machinability rating	42

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

Casting characteristics provided by CDA