

C92300

Continuous Cast

Product Description:	Leaded Tin Bronze
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

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-18

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.



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-18

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.

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.