C91000

Continuous Cast • GreenAlloys™

Product Description:	Tin Bronze
Solids:	1" to 6" O.D.
Tubes:	1" to 6" O.D.
Rectangles:	Up to 10"
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
Compliance:	C91000 is compliant with key legislation including (1) Federal Safe Drinking Water Act 1974 – SDWA, (2) Federal Reduction of Lead in Drinking Water Act of 2011 and (3) California AB1953

Typical Uses

Industrial	bearings, piston rings

Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C91000	B505 B505M			QQ-C-390, D2 QQ-B-1005, Comp 9	MIL-B-16262, Grade III	

Chemical Composition

Cu%[1]	Pb%	Sn%	Zn%	Fe%	P%	Ni%[2]	Al%	S%	Sb%	Si%
84.00-86.00	0.20	14.00-16.00	1.50	0.10	1.50	0.80	0.005	0.05	0.20	0.005

Chemical Composition according to ASTM B505/B505M-18

[1]In determining Cu min., Cu may be calculated as Cu + Ni. [2]Ni value includes Co.
Note: Cu + Sum of Named Elements, 99.4% min. Single values represent maximums.

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in^3 at 68 ˚F)
C91000	20	0.317

GREEN ALLOYS™

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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				105	

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1760 ˚F	960 ˚C
Melting Point – Solidus	1505 ˚F	818 ˚C
Electrical Conductivity	9% IACS at 68 ˚F	0.054 MegaSiemens/cm at 20 ˚C
Specific Heat Capacity	0.09 Btu/lb/˚F at 68 ˚F	377.1 J/kg at 20 ˚C
Modulas of Elasticity in Tension	16000 ksi	110000 MPa

Physical Properties provided by CDA

Fabrication Properties

Technique	Suitability
Soldering	Excellent
Brazing*	Good
Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Fair
Machinability Rating	20

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.

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