

C91000

Cast • GreenAlloy™

Product Description:	Tin Bronze
Solids:	1" to 6" OD
Tubes:	1" to 6" OD
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 2011 and (3) California AF1953

Typical Uses

Industrial piston rings, bearings

Similar or Equivalent Specification

CDA	ASTM	ASARCON	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% ²	Ni% ³	Al%	S%	Sb%	Si%
84.00- 86.00	0.20	14.00- 16.00	1.50	0.10	0.05	0.80	0.005	0.05	0.20	0.005

Chemical Composition according to ASTM B505/B505M-14

¹In determining Cu min., Cu may be calculated as Cu + Ni.

²For continuous castings, P shall be 1.5% max.

³Ni 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/cu in at 68° F)
C91000	20	0.317

Mechanical Properties

C91000 continued

Tensile Strength, min		Yield Strength, at .5% extension under load min		Elongation, in 2 in. or 50 mm min	Brinell Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical BHN	
30	207				105 (500 kg)	

Mechanical Properties according to ASTM B505/B505M-14

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 293° C
Modulus of Elasticity in Tension	16000 ksi	110000 MPa

Physical Properties provided by CDA

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Good
Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Fair

Fabrication Properties provided by CDA

Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Stress Temperature	500	260
Solution Minimum		
Solution Maximum		
Solution Time	0.0	
Solution Medium		
Precipitation Value		
Precipitation Time		
Precipitation Medium		
Annealing Minimum		
Annealing Maximum		
Annealing Time		
Hot Treatment Minimum		
Hot Treatment Maximum		

Thermal Properties provided by CDA