

C95400

Cast • GreenAlloys™

Product Description:	Aluminum Bronze
Solids:	½" to 9" O.D.
Tubes:	1½" to 9" O.D.
Rectangles:	Up to 15"
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:	C95400 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

Automotive	weld guns
Fasteners	large hold-down screws, nuts
Industrial	bearing segments for the steel industry, bearings, bushings, gears, heavily loaded worm gears, high-strength clamps, landing gear parts, machine parts, pawl, pickling hooks, pressure blocks for the steel industry, pump parts, spur gears, valve bodies, valve guides, valve seats, valves, worm gears
Marine	covers for marine hardware, ship building
Ordnance	government fittings

Note: Also available in heat-treated condition.

Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C95400	B505 B505M	J461 J462		QQ-C-390, G5 QQ-B-671, Class 3	MIL-B-16033, Class 3	Aluminum Bronze 9C

Chemical Composition

Cu%	Fe%	Ni% ¹	Al%	Mn%
83.00	3.00-		10.00-	
min	5.00	1.50	11.50	0.50

Chemical Composition according to ASTM B505/B505M-18

¹Ni value includes Co.

Note: Cu + Sum of Named Elements, 99.5% min. Unless otherwise noted, single values represent maximums.

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in ³ at 68 °F)
C95400	60	0.269

Mechanical Properties

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Brinell Hardness (3000 kg load)	Remarks
ksi	MPa	ksi	MPa	%	typical BHN	
85	586	32	221	12	170	

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1900 °F	1038 °C
Melting Point – Solidus	1880 °F	1027 °C
Density	0.269 lb/in ³ at 68 °F	7.45 gm/cm ³ at 20 °C
Specific Gravity	7.45	7.45
Electrical Conductivity	13% IACS at 68 °F	0.075 MegaSiemens/cm at 20 °C
Thermal Conductivity	33.9 Btu/sq ft/hr/°F at 68 °F	58.7 W/m at 20 °C
Coefficient of Thermal Expansion 68-572	9 · 10 ⁻⁶ per °F (68-572 °F)	15.5 · 10 ⁻⁶ per °C (20-300 °C)
Specific Heat Capacity	0.1 Btu/lb/°F at 68 °F	419 J/kg at 20 °C
Modulus of Elasticity in Tension	15500 ksi	107000 MPa
Magnetic Permeability*	1.27	1.27
Magnetic Permeability**	1.2	1.2

Physical Properties provided by CDA

*As cast, field strength 16 kA/m **TQ 50 temper, field strength 16 kA/m

Fabrication Properties

Technique	Suitability
Soldering	Good
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Good
Machinability Rating	60

Fabrication Properties provided by CDA

Thermal Properties

Treatment	Min*	Max*	Value*	Time**	Medium
Stress Relief			600		
Solution Treatment	1600	1675		1	Water
Annealing	1150	1225		1	

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.