

C95500

Cast • GreenAlloy™

Product Description:	Nickel Aluminum Bronze
Solids:	½" to 9" OD
Tubes:	1½" to 9" OD
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:	C95500 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

Builders Hardware	window hardware
Consumer	musical instruments, piano keys
Electrical	electrical hardware
Fasteners	stuffing box nuts
Industrial	machine parts, glass molds, welding jaws, wear plates, aircraft components, pickling equipment, valve guides/seats/bodies, piston guides, pump fluid ends, glands, worms, worm gears, hot mill guides, sewage treatment applications, valve components, bearings, gears, bushings, landing gear parts, handgun recoil mechanisms
Marine	ship building, covers for marine hardware, marine applications, marine hardware
Ordnance	government fittings

Note: Also available in heat-treated condition.

Similar or Equivalent Specification

CDA	ASTM	ASARCON	SAE	AMS	FEDERAL	MILITARY	OTHER
C95500	B505 B505M				QQ-C-390, G3	MIL-B-16033, CLASS 4	Aluminum Bronze 9D

Chemical Composition

Cu%	Fe%	Ni% ¹	Al%	Mn%
78.00	3.00-	3.00-	10.00-	
min	5.00	5.50	11.50	3.50

Chemical Composition according to ASTM B505/B505M-14

¹Ni value includes Co.

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

Machinability

C95500 continued

Copper Alloy UNS No.	Machinability Rating	Density (lb/cu in at 68° F)
C95500	50	0.272

Mechanical Properties

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	
95	655	42	290	10	208 (3000 kg)	

Mechanical Properties according to ASTM B505/B505M-14

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1930° F	1054° C
Melting Point – Solidus	1900° F	1038° C
Density	0.272 lb/in ³ at 68° F	7.53 gm/cm ³ at 20° C
Specific Gravity	7.53	7.53
Electrical Conductivity	8% IACS at 68° F	0.049 MegaSiemens/cm at 20° C
Thermal Conductivity	24.2 Btu · ft/(hr · ft ² · °F) at 68° F	41.9 W/m at 20° C
Coefficient of Thermal Expansion	9 · 10 ⁻⁶ per °F (68°-572° F)	15.5 · 10 ⁻⁶ per °C (20°-300° C)
Specific Heat Capacity	0.10 Btu/lb/°F at 68° F	419 J/kg at 293° C
Modulus of Elasticity in Tension	16000 ksi	110000 MPa
Magnetic Permeability*	1.32	1.32
Magnetic Permeability**	1.2	1.2
Poisson's Ratio	0.32	0.32

Physical Properties provided by CDA

*As Cast, Field Strength 16 kA/m **TQ 50 Temper, Field Strength 16 kA/m

Fabrication Properties

Joining Technique	Suitability
Soldering	Good
Brazing	Fair
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Good

Fabrication Properties provided by CDA

Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Stress Temperature	600	316
Solution Minimum	1600	872
Solution Maximum	1675	914
Solution Time	1.0	
Solution Medium	Water	
Precipitation Value		
Precipitation Time		
Precipitation Medium		
Annealing Minimum	1150	622
Annealing Maximum	1225	663
Annealing Time	1.0	
Hot Treatment Minimum		
Hot Treatment Maximum		

Thermal Properties provided by CDA