

C95800

Continuous cast

Product description	Nickel-aluminum bronze
Solids	1/2" to 9" O.D.
Tubes	1 1/8" 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

Typical uses

Fasteners

Nuts

Industrial

Bushings, gears, machinery, pickling equipment, propeller blades, propeller hub, shafts, valve bodies, wear plates, worm wheels, worms

Marine

Covers for marine hardware, marine hardware, ship building, valves in contact with sea water

Plumbing

Elbows

Similar or equivalent specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C95800	B505 B505M			QQ-C-390, G8		Alpha nickel-aluminum bronze

Chemical composition

Cu (%)	Pb (%)	Fe (%) ¹	Ni (%) ^{1,2}	Al (%)	Mn (%)	Si (%)
79.00 min	0.03	3.50-4.50	4.00-5.00	8.50-9.50	0.08-1.50	0.10

Chemical composition according to ASTM B505/B505M-23

¹Fe content shall not exceed Ni content. ²Ni 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)
C95800	20	0.276

C95800 continued

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	35	241	18	159	

Mechanical properties according to ASTM B505/B505M-23

Note: C95800 provided as cast or temper annealed.

Physical properties

	US customary	Metric
Melting point – liquidus	1940 °F	1060 °C
Melting point – solidus	1910 °F	1043 °C
Density	0.276 lb/in ³ at 68 °F	7.64 gm/cm ³ at 20 °C
Specific gravity	7.64	7.64
Electrical conductivity	7% IACS at 68 °F	0.041 MegaSiemens/cm at 20 °C
Thermal conductivity	20.8 Btu/sq ft/ft hr/ °F at 68 °F	36 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	0.105 Btu/lb/ °F at 68 °F	440 J/kg at 20 °C
Modulus of elasticity in tension	16500 ksi	114000 MPa
Magnetic permeability*	1.05	1.05
Poisson's ratio	0.32	0.32

Physical properties provided by CDA

*Field strength is 16 kA/m

Fabrication properties

Technique	Suitability
Soldering	Good
Brazing	Fair
Oxyacetylene welding	Not recommended
Gas shielded arc welding	Good
Coated metal arc welding	Good
Machinability rating	20

Fabrication properties provided by CDA.

Casting characteristics

Casting attribute	Level
Casting yield	Low
Drossing	High
Effect of section size	Low
Fluidity	Medium
Gassing	Medium
Patternmakers shrinkage (inches per foot)	3/16
Shrinkage in solidification	High

Casting characteristics provided by CDA