

C96400

Continuous cast

Product description	Copper-nickel
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

Industrial

Fittings, pump bodies, pump fixtures, steam fittings

Marine

Boat parts, elbows/flanges/pump bodies/valves used for sea water corrosion resistance

Similar or equivalent specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C96400	B505 B505M					70-30 Copper nickel

Chemical composition

Cu (%)	Pb (%)	Fe (%)	P (%)	Ni (%) ¹	C (%)	Mn (%)	S (%)	Si (%)	Nb (%)
Remain	0.01	0.25-1.50	0.02	28.00-32.00	0.15	1.50	0.02	0.50	0.50-1.50

Chemical composition according to ASTM B505/B505M-23

¹Ni value includes Co.

Note: Cu + sum of named elements, 99.5% min. Single values represent maximums.

Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in ³ at 68° F)
C96400	20	0.323

C96400 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	Remarks
ksi	MPa	ksi	MPa	%	typical BHN	
65	448	35	241	25		

Mechanical properties according to ASTM B505/B505M-23

Physical properties

	US customary	Metric
Melting point – liquidus	2260 °F	1238 °C
Melting point – solidus	2140 °F	1171 °C
Density	0.323 lb/in ³ at 68 °F	8.94 gm/cm ³ at 20 °C
Specific gravity	8.94	8.94
Electrical conductivity	5% IACS at 68 °F	0.029 MegaSiemens/cm at 20 °C
Thermal conductivity	16.4 Btu/sq ft/ft hr/°F at 68 °F	28.4 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	0.09 Btu/lb/°F at 68 °F	377.1 J/kg at 20 °C
Modulus of elasticity in tension	21000 ksi	144791 MPa

Physical properties provided by CDA

Fabrication properties

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

Fabrication properties provided by CDA.

*Filler metal R CuNi, or E CuNi.

Casting characteristics

Casting attribute	Level
Casting yield	Low
Drossing	Medium
Effect of section size	Low
Fluidity	High
Gassing	High
Patternmakers shrinkage (inches per foot)	7/32
Shrinkage in solidification	High

Casting characteristics provided by CDA