C99500

Continuous Cast

Product Description:	Special Alloy
Solids:	½" to 9" O.D.
Tubes:	1⅛" to 9" O.D.
Rectangles:	Up to 14"
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

Electrical	electrical parts
Industrial	gears for mining equipment, propeller wheels, valve stems
Marine	outboard marine components

Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C99500	B505 B505M B763					

Chemical Composition

Cu%	Pb%	Zn%	Fe%	Ni%[1]	Al%	Mn%	Si%
Rem.	0.09	0.50-2.00	3.00-5.00	3.50-5.50	0.50-2.00	0.50	0.50-2.00

Chemical Composition according to ASTM B505/B505M-18

[1]Not including Co.
Note: Cu + Sum of Named Elements, 99.7% min. Single values represent maximums.

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in^3 at 68 ˚F)
C99500	50	0.3

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Mechanical Properties

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Brinell Hardness (500 kg load)	Remarks
ksi	MPa	ksi	MPa	%	typical BHN	
70	483	40	276	12	145	

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

	US Customary	Metric
Density	0.3 lb/in^3 at 68 ˚F	8.3 gm/cm^3 at 20 ˚C
Specific Gravity	8.3	8.3
Electrical Conductivity	10% IACS at 68 ˚F	0.057 MegaSiemens/cm at 20 ˚C
Coefficient of Thermal Expansion 68-572	8.3 · 10^{-6} per ˚F (68-572 ˚F)	14.3 · 10^{-6} per ˚C (20-300 ˚C)
Modulas of Elasticity in Tension	19000 ksi	131000 MPa

Physical Properties provided by CDA

Fabrication Properties

Technique	Suitability
Gas Shielded Arc Welding	Good
Machinability Rating	50

Fabrication Properties provided by CDA

Thermal Properties

Treatment	Min*	Value*	Time**	Medium
Stress Relief		600		
Solution Treatment	1625		60	Water
Precipitation Treatment		900	60	

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.

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