C86500

Cast

Product Description:	Manganese Bronze
Solids:	½" to 9" OD
Tubes:	1⅛" 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

Typical Uses

Automotive	weld guns
Builders Hardware	brackets
Electrical	electrical hardware
Industrial	struts, machinery, gears, compressors, forming dies for wood pulp industry, wear rings for pressing dies for wood pulp industry, pressing dies for wood pulp, hooks, frames, machinery parts requiring high strength, machinery parts (substituted for steel and malleable iron), lever arms
Marine	propellers for salt and fresh water, covers for marine hardware, clamps, boat parts, rudders

Similar or Equivalent Specification

CDA	ASTM	ASARCON	SAE	AMS	FEDERAL	MILITARY	OTHER
C86500	B505 B505M		J461 J462	4860	QQ-C-390, C3 QQ-B-726, CLASS A	MIL-C-22229, COMP 7	

Chemical Composition

Cu%[1]	Pb%	Sn%	Zn%	Fe%	Ni%[2]	Al%	Mn%
55.00- 60.00	0.40	1.00	36.00- 42.00	0.40- 2.00	1.00	0.50- 1.50	0.10- 1.50

Chemical Composition according to ASTM B505/B505M-14

[1]In determining Cu min., Cu may be calculated as Cu + Ni. [2]Ni value includes Co.
Note: Cu + Sum of Named Elements, 99.0% min. Single values represent maximums.

CONCAST METAL PRODUCTS CO.

P.O. Box 816 • Mars, PA 16046 • Phone (724) 538-4000 • Toll Free (800) 626-7071 • Fax (724) 538-3956

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/cu in at 68˚ F)
C86500	26	0.301

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	
70	483	25	172	25	130 (3000 kg)	

Mechanical Properties according to ASTM B505/B505M-14

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1616˚ F	880˚ C
Melting Point – Solidus	1583˚ F	862˚ C
Density	0.301 lb/in^3 at 68˚ F	8.33 gm/cm^3 at 20˚ C
Specific Gravity	8.33	8.33
Electrical Conductivity	22% IACS at 68˚ F	0.128 MegaSiemens/cm at 20˚ C
Thermal Conductivity	49.6 Btu · ft/(hr · ft^2 · ˚F) at 68˚ F	85.8 W/m at 20˚ C
Coefficient of Thermal Expansion	11.3 · 10^{-6} per ˚F (68˚-212˚ F)	19.5 · 10^{-6} per ˚C (20˚-100˚ C)
Specific Heat Capacity	0.09 Btu/lb/˚F at 68˚ F	377.1 J/kg at 293˚ C
Modulas of Elasticity in Tension	15000 ksi	103400 MPa
Magnetic Permeability*	1.09	1.09

Physical Properties provided by CDA
*Field Strength 16 kA/m

Fabrication Properties

Joining Technique	Suitability
Soldering	Fair
Brazing	Fair
Oxyacetylene Welding	Poor
Gas Shielded Arc Welding	Poor
Coated Metal Arc Welding	Poor

Fabrication Properties provided by CDA

Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Stress Temperature	500	260
Solution Minimum		
Solution Maximum		
Solution Time	0.0	
Solution Medium		
Precipitation Value		
Precipitation Time		
Precipitation Medium		
Annealing Minimum		
Annealing Maximum		
Annealing Time		
Hot Treatment Minimum		
Hot Treatment Maximum		

Thermal Properties provided by CDA

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