

# C86200

Continuous Cast

<b>Product Description:</b>	Manganese Bronze
<b>Solids:</b>	½" to 9" O.D.
<b>Tubes:</b>	1⅝" to 9" O.D.
<b>Rectangles:</b>	Up to 15"
<b>Standard Lengths:</b>	144"
<b>Shape/Form:</b>	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

<b>Builders Hardware</b>	brackets, structural parts
<b>Fasteners</b>	screw down nuts
<b>Industrial</b>	bushings, cams, frames, gears, high-strength machine parts, hooks, marine racing propellers, press dies, shafts, struts, valve stems, wear rings for pressing dies for wood pulp industry, worm gears
<b>Marine</b>	boat parts, clamps, marine castings, rudders
<b>Ordinance</b>	gun mounts

## Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C86200	B505 B505M B271 B271M	J461 J462		QQ-C-523	MIL-C-11866	

## Chemical Composition

Cu% <sup>1</sup>	Pb%	Sn%	Zn%	Fe%	Ni% <sup>1,2</sup>	Al%	Mn%
60.00- 66.00	0.20	0.20	22.00- 28.00	2.00- 4.00	1.00	3.00- 4.90	2.50- 5.00

Chemical Composition according to ASTM B505/B505M-18

<sup>1</sup>In determining Cu min., Cu may be calculated as Cu + Ni.  
Note: Single values represent maximums.

<sup>2</sup>Ni value includes Co.



## Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in <sup>3</sup> at 68 °F)
C86200	30	0.288

## 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	
90	621	45	310	18	180	

Mechanical Properties according to ASTM B505/B505M-18

## Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1725 °F	941 °C
Melting Point – Solidus	1650 °F	899 °C
Density	0.288 lb/in <sup>3</sup> at 68 °F	7.97 gm/cm <sup>3</sup> at 20 °C
Specific Gravity	7.97	7.97
Electrical Conductivity	8% IACS at 68 °F	0.044 MegaSiemens/cm at 20 °C
Thermal Conductivity	20.5 Btu/sq ft/ft hr/°F at 68 °F	35.5 W/m at 20 °C
Coefficient of Thermal Expansion 68-572	12 · 10 <sup>-6</sup> per °F (68-572 °F)	20.7 · 10 <sup>-6</sup> 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	15000 ksi	103400 MPa
Magnetic Permeability*	1.24	1.24

Physical Properties provided by CDA

\*Field Strength 16 kA/m

## Fabrication Properties

Technique	Suitability
Soldering	Poor
Brazing	Poor
Oxyacetylene Welding	Good
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Good
Machinability Rating	30

Fabrication Properties provided by CDA

## Thermal Properties

Treatment	Value*	Time**
Stress Relief	500	
Solution Treatment		0

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.