

# C94800

Cast

<b>Product Description:</b>	Leaded Nickel-Tin Bronze
<b>Solids:</b>	½" to 10" O.D.
<b>Tubes:</b>	1" to 16" O.D.
<b>Rectangles:</b>	Up to 20"
<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>	structural castings
<b>Industrial</b>	bearings, gear components, machinery parts, motion translation devices

## Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C94800	B505 B505M B948 B292-B			QQ-C-390, F3		

## Chemical Composition

Cu%	Pb%	Sn%	Zn%	Fe%	P%	Ni% <sup>1</sup>	Al%	Mn%	S%	Sb%	Si%
84.00- 89.00	0.30- 1.00	4.50- 6.00	1.00- 2.50	0.25	0.05	4.50- 6.00	0.005	0.20	0.05	0.15	0.005

Chemical Composition according to ASTM B505/B505M-18

<sup>1</sup>Ni value includes Co.

Note: Cu + Sum of Named Elements, 98.7% min. Single values represent maximums.

## Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in <sup>3</sup> at 68 °F)
C94800	50	0.32



## 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	
40	276	20	138	20	80	

Mechanical Properties according to ASTM B505/B505M-18

## Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1880 °F	1027 °C
Melting Point – Solidus	1660 °F	904 °C
Density	0.32 lb/in <sup>3</sup> at 68 °F	8.86 gm/cm <sup>3</sup> at 20 °C
Specific Gravity	8.86	8.86
Electrical Conductivity	12% IACS at 68 °F	0.07 MegaSiemens/cm at 20 °C
Thermal Conductivity	22.3 Btu/sq ft/ft hr/°F at 68 °F	38.6 W/m at 20 °C
Coefficient of Thermal Expansion 68-572	10.9 · 10 <sup>-6</sup> per °F (68-572 °F)	18.8 · 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

Physical Properties provided by CDA

## Fabrication Properties

Technique	Suitability
Soldering	Excellent
Brazing*	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Not Recommended
Machinability Rating	50

Fabrication Properties provided by CDA

\*Since brazing is performed within the hot-short range, strain must be avoided during brazing and cooling.

## Thermal Properties

Treatment	Min*	Max*	Value*	Time**	Medium
Stress Relief			500		
Solution Treatment	1425	1475		2	Water
Precipitation Treatment			580	6	Air

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.