

# C92900

Cast

<b>Product Description:</b>	Leaded Nickel-Tin Bronze
<b>Solids:</b>	½" to 13" 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

**Industrial**                      cams, gears, general-service bearings, impellers for mine water, pump bodies, wear plates, worm gears

## Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C92900	B505 B505M					

## Chemical Composition

Cu% <sup>1</sup>	Pb%	Sn%	Zn%	Fe%	P%	Ni% <sup>1,2</sup>	Al%	S%	Sb%	Si%
82.00- 86.00	2.00- 3.20	9.00- 11.00	0.25	0.20	1.50	2.80- 4.00	0.005	0.05	0.25	0.005

Chemical Composition according to ASTM B505/B505M-18

<sup>1</sup>In determining Cu min., Cu may be calculated as Cu + Ni.                      <sup>2</sup>Ni value includes Co.  
Note: Cu + Sum of Named Elements, 99.3% min. Single values represent maximums.

## Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in <sup>3</sup> at 68 °F)
C92900	40	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	
45	310	25	172	8	75	

Mechanical Properties according to ASTM B505/B505M-18

## Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1887 °F	1031 °C
Melting Point – Solidus	1575 °F	857 °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	9% IACS at 68 °F	0.053 MegaSiemens/cm at 20 °C
Thermal Conductivity	33.6 Btu/sq ft/ft hr/°F at 68 °F	58.2 W/m at 20 °C
Coefficient of Thermal Expansion 68-392	9.5 · 10 <sup>-6</sup> per °F (68-392 °F)	16.4 · 10 <sup>-6</sup> per °C (20-200 °C)
Specific Heat Capacity	0.09 Btu/lb/°F at 68 °F	377.1 J/kg at 20 °C
Modulus of Elasticity in Tension	14000 ksi	96500 MPa
Incipient Melting	600 °F	316 °C

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	40

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	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.