

# C90300

Standard-stocked product	Continuous cast	GreenAlloys™
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Product description	Tin bronze
Solids	1/2" to 10" O.D.
Tubes	1" to 16" O.D.
Rectangles	Up to 20"
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

### Building

Heavy construction equipment

### Fasteners

Swivel

### Industrial

Bearings, bushings, gear blanks, gears, piston rings, pump bodies, pump impellers, valve bodies, valves

### Plumbing

Steam fittings

## Chemical composition

Cu (%) <sup>1</sup>	Pb (%)	Sn (%)	Zn (%)	Fe (%)	P (%)	Ni (%) <sup>1,2</sup>	Al (%)	S (%)	Sb (%)	Si (%)
86.00-89.00	0.30	7.50-9.00	3.00-5.00	0.20	1.50	1.00	0.005	0.05	0.20	0.005

Chemical composition according to ASTM B505/B505M-23

<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, 99.4% min. Single values represent maximums.

## Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in <sup>3</sup> at 68 ° F)
C90300	30	0.318

## 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	
44	303	22	152	18	70	

## Physical properties

	US customary	Metric
Melting point – liquidus	1832 °F	1000 °C
Melting point – solidus	1570 °F	854 °C
Density	0.318 lb/in <sup>3</sup> at 68 °F	8.8 gm/cm <sup>3</sup> at 20 °C
Specific gravity	8.8	8.8
Electrical conductivity	12% IACS at 68 °F	0.069 MegaSiemens/cm at 20 °C
Thermal conductivity	43.2 Btu/sq ft/ft hr/°F at 68 °F	74.8 W/m at 20 °C
Coefficient of thermal expansion 68-392	10 · 10 <sup>-6</sup> per °F (68-392 °F)	17.3 · 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	96527 MPa
Magnetic permeability	1	1

Physical properties provided by CDA

## Fabrication properties

Technique	Suitability
Soldering	Excellent
Brazing*	Good
Oxyacetylene welding	Fair
Gas shielded arc welding	Fair
Coated metal arc welding	Fair
Machinability rating	30

Fabrication properties provided by CDA

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

## Casting characteristics

Casting attribute	Level
Casting yield	Medium
Drossing	Low
Effect of section size	High
Fluidity	Medium
Gassing	Medium
Patternmakers shrinkage (inches per foot)	3/16
Shrinkage in solidification	Medium

Casting characteristics provided by CDA