

# C89835 Lead-free replacement for C932, C836, C844

Standard-stocked product	Continuous cast	GreenAlloys™
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Product description	Bismuth tin bronze
Solids	1/2" to 10" O.D.
Tubes	1 1/8" to 14" O.D.
Rectangles	Up to 15"
Standard lengths	105"
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
Compliance	C89835 is compliant with key legislation including (1) Federal Safe Drinking Water Act - SDWA, (2) S. 3874 Federal Reduction of Lead in Drinking Water Act, (3) California AB1953, (4) Vermont Act 193, and is NSF/ANSI/CAN 61-2022 compliant

## Typical uses

### Industrial

Housing, small gears

### Industrial

Faucets, pipe fittings, plumbing goods, pump components, water pump impellers

## Chemical composition

Cu (%)	Pb (%)	Sn (%)	Zn (%)	Fe (%)	P (%)	Ni (%) <sup>1</sup>	Al (%)	Bi (%)	S (%)	Sb (%)	Si (%)
85.00-89.00	0.09	6.00-7.50	2.00-4.00	0.20	0.10	1.00	0.005	1.70-2.70	0.08	0.35	0.005

Chemical composition provided by CDA

<sup>1</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)
C89835	70	0.321

## 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	
30	207	14	97	6	65	

## Physical properties

	US customary	Metric
Melting point – liquidus	1855 °F	1012 °C
Melting point – solidus	1445 °F	785 °C
Density	0.321 lb/in <sup>3</sup> at 68 °F	8.89 gm/cm <sup>3</sup> at 20 °C
Specific gravity	8.89	8.89
Electrical conductivity	14.5% IACS at 68 °F	0.084 MegaSiemens/cm at 20 °C
Thermal conductivity	38 Btu/sq ft/ft hr/°F at 68 °F	65.8 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	0.093 Btu/lb/°F at 68 °F	389.6 J/kg at 20 °C
Modulus of elasticity in tension	16900 ksi	116522 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	70

Fabrication properties provided by CDA

## Casting characteristics

Casting attribute	Level
Casting yield	High
Drossing	Low
Effect of section size	Low
Fluidity	Medium
Gassing	Medium
Patternmakers shrinkage (inches per foot)	1/8
Shrinkage in solidification	Low

Casting characteristics provided by CDA