

C87850

Cast • GreenAlloys™

Product Description:	Silicon Brass
Solids:	Consult mill for sizes
Tubes:	Consult mill for sizes
Rectangles:	Consult mill for sizes
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
Compliance:	C89837 is compliant with key legislation including (1) Federal Safe Drinking Water Act 1974 – SDWA, (2) Federal Reduction of Lead in Drinking Water Act 2011 and (3) California AB1953

Typical Uses

Industrial	valve bodies for water
Marine	marine products
Plumbing	faucets, plumbing fittings, water meter cases

Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C87850	B505 B505M					

Chemical Composition

Cu%	Pb%	Sn%	Zn%	Fe%	P	Ni% ¹	Mn%	Sb%	Si%
75.00- 78.00	0.02*- 0.09	0.30	Rem.	0.10	0.05- 0.20	0.20	0.10	0.10	2.70- 3.40

Chemical Composition according to ASTM B505/B505M-18

*Pb content is greater than 0.02%.

¹Ni value includes Co.

Note: Cu + Sum of Named Elements, 99.5% min. Single values represent maximums.

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in ³ at 68 °F)
C87850	70	0.3

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	%	minimum BHN	
65	448	25	172	8	103	

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1616 °F	880 °C
Melting Point – Solidus	1571 °F	855 °C
Density	0.3 lb/in ³ at 68 °F	8.3 gm/cm ³ at 20 °C
Electrical Conductivity	8% IACS at 68 °F	0.046 MegaSiemens/cm at 20 °C
Thermal Conductivity	21.8 Btu/sq ft/ft hr/°F at 68°F	37.8 W/m at 20 °C
Coefficient of Thermal Expansion 68-212	10.3 · 10 ⁻⁶ per °F (68-212 °F)	17.8 · 10 ⁻⁶ per °C (20-100 °C)
Coefficient of Thermal Expansion 68-392	10.3 · 10 ⁻⁶ per °F (68-392 °F)	17.8 · 10 ⁻⁶ per °C (20-200 °C)
Coefficient of Thermal Expansion 68-572	10.4 · 10 ⁻⁶ per °F (68-572 °F)	18 · 10 ⁻⁶ 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	15200 ksi	104801 MPa

Physical Properties provided by CDA

Fabrication Properties

Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Spot Weld	Good
Seam Weld	Good
Butt Weld	Good
Capacity for Being Cold Worked	Poor
Capacity for Being Hot Formed	Excellent
Machinability Rating	70

Fabrication Properties provided by CDA

Thermal Properties

Treatment	Min*	Max*	Value*	Time**
Stress Relief			0	
Solution Treatment				0
Annealing	932	1112		

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.