

# C83600

Cast

<b>Product Description:</b>	Leaded Red Brass
<b>Solids:</b>	½" to 13" OD
<b>Tubes:</b>	1" to 16" OD
<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>Architecture</b>	ornamental fixtures
<b>Builders Hardware</b>	hardware
<b>Building</b>	heating equipment, cooling equipment, lightning protection, trowels for cement working
<b>Electrical</b>	switches, electrical equipment, electrical hardware
<b>Fasteners</b>	large hold-down screws
<b>Industrial</b>	couplings, handles for dental equipment, air actuators, pressure blocks for steel industry, bearing segments for steel industry, valve bodies, valves, bushings, pump parts, valves, transducer housings, valve bodies for the water meter industry, valves for the water meter industry, rings, printing presses, furnaces, pumps, low pressure valves, small gears, bearings, pump fixtures, impellers, valve bodies, pumps
<b>Marine</b>	parts for boats, marine products
<b>Plumbing</b>	pipe fittings, fixtures, faucets

## Similar or Equivalent Specification

CDA	ASTM	ASARCON	SAE	AMS	FEDERAL	MILITARY	OTHER
C83600	B505 B505M B62 B145-4A	55	40 J461 J462	4855	QQ-C-390, B5 QQ-B-1005, COMP 2	MIL-B-11553, COMP 2 MIL-C-14345, ALLOY 1	Ounce Metal

## Chemical Composition

Cu% <sup>1</sup>	Pb%	Sn%	Zn%	Fe%	P% <sup>2</sup>	Ni% <sup>3</sup>	Al%	S%	Sb%	Si%
84.00- 86.00	4.00- 6.00	4.00- 6.00	4.00- 6.00	0.30	0.05	1.00	0.005	0.08	0.25	0.005

Chemical Composition according to ASTM B505/B505M-14

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

<sup>2</sup>For continuous castings, P shall be 1.5% max.

<sup>3</sup>Ni value includes Co.



## Machinability

C83600 continued

Copper Alloy UNS No.	Machinability Rating	Density (lb/cu in at 68° F)
C83600	84	0.318

## Mechanical Properties

Tensile Strength, min		Yield Strength, at .5% extension under load min		Elongation, in 2 in. or 50 mm min	Brinell Hardness	Remarks
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ksi	MPa	ksi	MPa	%	typical BHN
36	248	19	131	15	60 (500 kg)

Mechanical Properties according to ASTM B505/B505M-14

## Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1850° F	1010° C
Melting Point – Solidus	1570° F	854° C
Density	0.318 lb/in <sup>3</sup> at 68° F	8.83 gm/cm <sup>3</sup> at 20° C
Specific Gravity	8.83	8.83
Electrical Conductivity	15% IACS at 68° F	0.087 MegaSiemens/cm at 20° C
Thermal Conductivity	41.6 Btu · ft/(hr · ft <sup>2</sup> · °F) at 68° F	72 W/m at 20° C
Coefficient of Thermal Expansion	10 · 10 <sup>-6</sup> per °F (68°-392° F)	17.3 · 10 <sup>-6</sup> per °C (20°-200° C)
Specific Heat Capacity	0.090 Btu/lb/°F at 68° F	377.1 J/kg at 293° C
Modulus of Elasticity in Tension	13500 ksi	93100 MPa
Magnetic Permeability	1	1

Physical Properties provided by CDA

## Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Fair

Fabrication Properties provided by CDA

## Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Stress Temperature	500	260
Solution Minimum		
Solution Maximum		
Solution Time	0	
Solution Medium		
Precipitation Value		
Precipitation Time		
Precipitation Medium		
Annealing Minimum		
Annealing Maximum		
Annealing Time		
Hot Treatment Minimum		
Hot Treatment Maximum		

Thermal Properties provided by CDA

