C86400

Continuous cast

Product description	Manganese bronze
Solids	1/2" to 9" O.D.
Tubes	1" to 9" O.D.
Rectangles	Up to 15"
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

Builders hardware

Door hardware for prisons, window hardware

Consumer

Musical instruments, piano keys

Electrical

Electrical components, electrical equipment, switches

Fasteners

Screw down nuts

Industrial

Bearing cage blanks, bearings, brackets, bushings, cams, fittings, lever arms, light-duty gears, machinery parts, propellers, pump fixtures, roller bearings, valve stems

Plumbing

Fixtures

Chemical composition

Cu (%)[1]	Pb (%)	Sn (%)	Zn (%)	Fe (%)	Ni (%)[2]	Al (%)	Mn (%)
56.00-62.00	0.50-1.50	0.50-1.50	34.00-42.00	0.40-2.00	1.00	0.50-1.50	0.10-1.50

Chemical composition according to ASTM B505/B505M-23

[1]In determining Cu min., Cu may be calculated as Cu + Ni.
Note: Single values represent maximums.

[2]Ni value includes Co.

Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in^3 at 68 $^\circ$F)
C86400	65	0.301

Mechanical properties

Tensile strength, typ		Yield strength, at 0.5% extension under load, typ		Elongation, in 2 in. or 50 mm, typ	Brinell hardness (500 kg load)	Remarks
ksi	MPa	ksi	MPa	%	typical BHN	
65	448	25	172	20	90	

Mechanical properties according to ASTM B505/B505M-23

Physical properties

	US customary	Metric
Melting point – liquidus	1616 °F	880 °C
Melting point – solidus	1583 °F	862 °C
Density	0.301 lb/in³ at 68 °F	8.33 gm/cm³ at 20 °C
Specific gravity	8.33	8.33
Electrical conductivity	19% IACS at 68 °F	0.110 MegaSiemens/cm at 20 °C
Thermal conductivity	51 Btu/sq ft/ft hr/ °F at 68 °F	88.3 W/m at 20 °C
Coefficient of thermal expansion 68-392	11 · 10^{-6} per °F (68-392 °F)	19 · 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
Modulas of elasticity in tension	14000 ksi	96527 MPa

Physical properties provided by CDA

Fabrication properties

Technique	Suitability
Soldering	Fair
Brazing	Fair
Oxyacetylene welding	Poor
Gas shielded arc welding	Poor
Coated metal arc welding	Poor
Machinability rating	65

Fabrication properties provided by CDA

Casting characteristics

Casting attribute	Level
Casting yield	Low
Drossing	High
Effect of section size	Low
Fluidity	Medium
Gassing	Low
Patternmakers shrinkage (inches per foot)	1/4
Shrinkage in solidification	High

Casting characteristics provided by CDA