

C67400

Extruded and drawn

Product description	Manganese bronze
Tempers	Extruded and drawn
Solids	3/4" to 3" O.D.
Hex	3/8" to 2" O.D.
Standard lengths	144"

Typical uses

Industrial

Bushings, cams, chain guides, food conveyor chain, gears, shafts, wear plates

Other

Connecting rods

Similar or equivalent specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C67400		J461 J463				

Chemical composition

Cu (%)	Pb (%)	Sn (%)	Zn (%)	Fe (%)	Ni (%) ¹	Al (%)	Mn (%)	Si (%)
57.00-60.00	0.50	0.30	Remain	0.35	0.25	0.50-2.00	2.00-3.50	0.50-1.50

Chemical composition according to SAE J463

¹Ni value includes Co.

Note: Single values represent maximums.

Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in ³ at 68 °F)
C67400	30	0.292

C67400 continued

Mechanical properties

Mechanical properties according to SAE J463
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Size range up to 1" inclusive

Tensile strength, min		Yield strength, at 0.5% extension under load, min		Elongation, in 4x diameter or thickness of specimen, min	Rockwell "B" hardness	Remarks
ksi	MPa	ksi	MPa	%	min HRB	
78	540	40	275	8	84	

Size range over 1" to 2" inclusive

Tensile strength, min		Yield strength, at 0.5% extension under load, min		Elongation, in 4x diameter or thickness of specimen, min	Rockwell "B" hardness	Remarks
ksi	MPa	ksi	MPa	%	min HRB	
75	515	40	275	10	80	

Size range over 2" to 3" inclusive

Tensile strength, min		Yield strength, at 0.5% extension under load, min		Elongation, in 4x diameter or thickness of specimen, min	Rockwell "B" hardness	Remarks
ksi	MPa	ksi	MPa	%	min HRB	
70	485	36	250	12	78	

Physical properties

	US customary	Metric
Melting point – liquidus	1625 °F	885 °C
Melting point – solidus	1590 °F	866 °C
Density	0.292 lb/in ³ at 68 °F	8.08 gm/cm ³ at 20 °C
Specific gravity	8.08	8.08
Electrical conductivity	23% IACS at 68 °F	0.13 MegaSiemens/cm at 20 °C
Thermal conductivity	58 Btu/sq ft/ft hr/°F at 68 °F	100.5 W/m at 20 °C
Coefficient of thermal expansion 68-572	11 · 10 ⁻⁶ per °F (68-572 °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
Modulus of elasticity in tension	16000 ksi	110317 MPa
Modulus of rigidity	6000 ksi	41369 MPa

Physical properties provided by CDA

Fabrication properties

Technique	Suitability
Soldering	Fair
Brazing	Good
Oxyacetylene welding	Not recommended
Gas shielded arc welding	Fair
Coated metal arc welding	Not recommended
Spot weld	Good
Seam weld	Good
Butt weld	Good
Capacity for being cold worked	Poor
Capacity for being hot formed	Excellent
Forgeability rating	100
Machinability rating	30

Fabrication properties provided by CDA

Thermal properties

Treatment	Minimum*	Maximum*
Annealing	800	1100
Hot treatment	1100	1250

Thermal properties provided by CDA

**Temperature is measured in Fahrenheit.*

Common fabrication processes

Hot forging and pressing, machining

Common fabrication processes provided by CDA