

C53400

Wrought

Product Description:	Phosphor Bronze B-1
Temper:	H04 Hard
Solids:	3/8" to 2 1/2" O.D.
Hex:	3/8" to 2" O.D.
Rectangles:	Consult Mill
Standard Lengths:	144"

Typical Uses

Industrial bushings, bearings, fasteners

Similar or Equivalent Specification

CDA	ASTM	Asarcon	SAE	AMS	Federal	Military	Other
C53400	B139 B139M						

Chemical Composition

Cu%	Pb%	Sn%	Zn%	Fe%	P%
Rem.	0.08- 1.20	3.50- 5.80	0.30	0.10	0.03- 0.35

Chemical Composition according to ASTM B139/B139M-12(2017)

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

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/cu in at 68 °F)
C53400	70	0.320



Mechanical Properties

C53400 continued

Mechanical Properties according to ASTM B139/B139M-12(2017)
C53400
H04 Hard

SIZE RANGE: ¼" ROUND AND HEXAGONAL TO ½" INCLUSIVE

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
60	415			10	86	

SIZE RANGE: OVER ½" ROUND AND HEXAGONAL TO 1" INCLUSIVE

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
55	380			12	86	

SIZE RANGE: OVER 1" ROUND AND HEXAGONAL

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
50	345			15	86	

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1920 °F	1049 °C
Melting Point – Solidus	1750 °F	954 °C
Density	0.32 lb/in ³ at 68 °F	8.91 gm/cm ³ at 20 °C
Specific Gravity	8.91	8.91
Electrical Resistivity	69.10 ohms-cmil/ft at 68 °F	11.4 microhm-cm at 20 °C
Electrical Conductivity	15% IACS at 68 °F	0.08 MegaSiemens/cm at 20 °C
Thermal Conductivity	400 Btu/sq ft/ft hr/°F at 68 °F	69.28 W/m at 20 °C
Coefficient of Thermal Expansion	9.9 · 10 ⁻⁶ per °F (68-572 °F)	17.1 · 10 ⁻⁶ per °C (20-300 °C)
Modulus of Elasticity in Tension	16000 ksi	110310 MPa
Modulus of Rigidity	6000 ksi	41300 MPa

Physical Properties provided by CDA



Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Good
Oxyacetylene Welding	Poor
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Poor
Spot Weld	Fair
Seam Weld	Fair
Butt Weld	Good
Capacity for Being Cold Worked	Good
Capacity for Being Hot Formed	Poor

Fabrication Properties provided by CDA

Thermal Properties

C53400 continued

Treatment	Temp./Time - US	Temp./Time - SI
Stress Temperature		
Solution Minimum		
Solution Maximum		
Solution Time		
Solution Medium		
Precipitation Value		
Precipitation Time		
Precipitation Medium		
Annealing Minimum	900	483
Annealing Maximum	1250	677
Annealing Time		
Hot Treatment Minimum		
Hot Treatment Maximum		

Thermal Properties provided by CDA