

C65100 Lead-Free Replacement

Wrought

Product Description:	Low-Silicon Bronze B
Tempers:	H02 Half-Hard, H04 Hard, H06 Extra-Hard
Solids:	3/8" to 2" O.D.
Hex:	3/8" to 2" O.D.
Rectangles:	Consult Mill
Standard Lengths:	144"

Typical Uses

Electrical	conduit, pole line hardware, motor, rotor bars
Fasteners	bolts, cable clamps, cap screws, machine screws, nuts, rivets, u bolts, fasteners, screws
Industrial	oil refinery plumbing tube, heat exchanger tube, welding rod, hydraulic pressure lines
Marine	hardware

Similar or Equivalent Specification

CDA	ASTM	Asarcon	SAE	AMS	Federal	Military	Other
C65100	B98 B98M						

Chemical Composition

Cu% ¹	Pb%	Zn%	Fe%	Mn%	Si%
Rem.	0.05	1.50	0.80	0.70	0.80- 2.00

Chemical Composition according to ASTM B98/B98M-13

¹Cu value includes Ag.

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)
C65100	30	0.316



Mechanical Properties

C65100 continued

Mechanical Properties according to ASTM B98/B98M-13
 C65100
 H02 Half-Hard

SIZE RANGE: UP TO ½" ROD 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	%	min to max HRB	
55	380	20	140	11	60-85	

SIZE RANGE: OVER ½" TO 2" ROD

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	%	min to max HRB	
55	380	20	140	12	60-85	

C65100
 H04 Hard

SIZE RANGE: UP TO ½" ROD

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	%	min to max HRB	
65	450	35	241	8	65-90	

SIZE RANGE: OVER ½" TO 2" ROD

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	%	min to max HRB	
65	450	35	241	10	65-90	



C65100
H06 Extra-Hard

C65100 continued

SIZE RANGE: UP TO ½" ROD

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	%	min to max HRB	
85	585	55	380	6	75-95	

SIZE RANGE: OVER ½" TO 1" INCLUSIVE ROD

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	%	min to max HRB	
75	515	45	310	8	75-95	

SIZE RANGE: OVER 1" TO 1½" ROD

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Brinell Hardness	Remarks
ksi	MPa	ksi	MPa	%	min to max HRB	
75	515	40	275	8	75-95	

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1940 °F	1060 °C
Melting Point – Solidus	1890 °F	1032 °C
Density	0.316 lb/in ³ at 68 °F	8.75 gm/cm ³ at 20 °C
Specific Gravity	8.75	8.75
Electrical Conductivity	12% IACS at 68 °F	0.07 MegaSiemens/cm at 20 °C
Thermal Conductivity	330 Btu/sq ft/ft hr/°F at 68 °F	57.1 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)
Specific Heat Capacity	0.09 Btu/lb/°F at 68 °F	377.1 J/kg at 20 °C
Modulus of Elasticity in Tension	17000 ksi	117210 MPa
Modulus of Rigidity	6400 ksi	44130 MPa

Physical Properties provided by CDA



Fabrication Properties

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

Fabrication Properties provided by CDA

Thermal Properties

C65100 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	1300	705
Hot Treatment Maximum	1300	705

Thermal Properties provided by CDA