



## C65100

Low-Silicon Bronze B

### Chemical Composition

(%max., unless shown as range or min.)

	Cu <sup>(1)</sup>	Fe	Pb	Mn	Si	Zn
Min./Max.	Rem.	0.8	0.05	0.7	.8-2.0	1.5
Nominal	98.5	-	-	-	1.5	-

(1) Cu value includes Ag.

### Applicable Specifications

Product	Specification
Bar	ASME SB98 ASTM B98
Bolts	ASTM F468
Nuts	ASTM F467
Pipe	ASTM B315
Plate	ASTM B96
Plate, Clad	ASTM B432
Rod	ASME SB98 ASTM B98
Screws	ASTM F468
Shapes	ASME SB98 ASTM B98
Sheet	ASTM B96
Strip	ASTM B96
Studs	ASTM F468
Tube	ASTM B315
Wire	ASTM B99, B105

### Common Fabrication Processes

Forming and Bending, Heading and Upsetting, Hot Forging and Pressing, Roll Threading and Knurling, Squeezing and Swaging

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## 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
Machinability Rating	30

## Thermal Properties

Treatment	Temp./Time – US	Temp./Time – SI
Stress Temperature		
Solution Minimum		
Solution Maximum		
Solution Time		
Solution Medium	None	
Precipitation Value		
Precipitation Time		
Precipitation Medium	None	
Annealing Minimum	900	483
Annealing Maximum	1250	677
Annealing Time		
Hot Works Minimum	1300	705
Hot Works Maximum	1300	705



## Mechanical Properties

(Measured at Room Temperature, 68°F (20°C))

	Section Size	Cold Work	Typ/Min	Temp	Tensile Strength	Yield Strength (0.5% ext. under load)	Yield Strength (0.2% offset)	Yield Strength (0.05% offset)	EI	Rockwell Hardness					Vickers Hardness	Brinell Hardness	Shear Strength	Fatigue Strength	Izod Impact Strength
	in. mm.	%		F C	ksi MPa	ksi MPa	ksi MPa	ksi MPa	%	B	C	F	30T	500	500	3000	ksi MPa	ksi MPa	ft-lb J
<b>Rod</b>																			
OS035	1	0	TYP	68	40	15	-	-	50	-	-	55	-	-	-	-	-	-	0
	25.4			20	276	103	-	-	50	-	-	55	-	-	-	-	-	-	0
<b>Wire</b>																			
H06	0.08	0	TYP	68	105	71	-	-	10	-	-	-	-	-	-	-	53	28	0
	2			20	724	490	-	-	10	-	-	-	-	-	-	-	365	193	0
<b>Tube</b>																			
H80	0	35	TYP	68	65	40	-	-	20	75	-	-	67	-	-	-	-	-	0
	0			20	448	276	-	-	20	75	-	-	67	-	-	-	-	-	0
<b>Rod</b>																			
H06	1	50	TYP	68	90	67	-	-	12	90	-	-	-	-	-	-	50	-	0
	25.4			20	621	462	-	-	12	90	-	-	-	-	-	-	345	-	0
<b>Wire</b>																			
H04	0.44	60	TYP	68	95	-	-	-	12	-	-	-	-	-	-	-	-	-	0
	11			20	655	-	-	-	12	-	-	-	-	-	-	-	-	-	0
H01	0.08	0	TYP	68	65	50	-	-	25	-	-	-	-	-	-	-	40	-	0
	2			20	448	345	-	-	25	-	-	-	-	-	-	-	276	-	0
H00	0.08	0	TYP	68	55	40	-	-	40	-	-	-	-	-	-	-	36	-	0
	2			20	379	276	-	-	40	-	-	-	-	-	-	-	248	-	0
<b>Rod</b>																			
H04	1	36	TYP	68	70	55	-	-	15	80	-	-	-	-	-	-	45	-	0
	25.4			20	483	379	-	-	15	80	-	-	-	-	-	-	310	-	0
<b>Wire</b>																			
H02	0.44	37	TYP	68	80	-	-	-	20	-	-	-	-	-	-	-	-	-	0
	11			20	552	-	-	-	20	-	-	-	-	-	-	-	-	-	0
<b>Tube</b>																			
OS015	0.065	0	TYP	68	45	20	-	-	55	-	-	68	-	-	-	-	-	-	0
	1.8			20	310	138	-	-	55	-	-	68	-	-	-	-	-	-	0
<b>Wire</b>																			
H01	0.44	21	TYP	68	63	-	-	-	30	-	-	-	-	-	-	-	-	-	0
	11			20	434	-	-	-	30	-	-	-	-	-	-	-	-	-	0
H04	0.08	0	TYP	68	100	70	-	-	11	-	-	-	-	-	-	-	50	25	0
	2			20	689	483	-	-	11	-	-	-	-	-	-	-	345	172	0
H02	0.08	0	TYP	68	80	63	-	-	15	-	-	-	-	-	-	-	45	-	0
	2			20	552	434	-	-	15	-	-	-	-	-	-	-	310	-	0

\*Fatigue Strength:  $100 \times 10^6$  cycles, unless indicated as [N]X  $10^6$ .

## Physical Properties

Property	US Customary	Metric
Melting Point - Liquidus	1940° F	1060° C
Melting Point - Solidus	1890° F	1032° C
Density	0.316 lb/in <sup>3</sup> at 68° F	8.75 gm/cm <sup>3</sup> @ 20° C
Specific Gravity	8.75	8.75
Electrical Resistivity	86.40 ohms-cmil/ft @ 68° F	14.36 microhm-cm @ 20° C
Electrical Conductivity	12 %IACS @ 68° F	0.07 MegaSiemens/cm @ 20° C
Thermal Conductivity	33 Btu·ft/(hr·ft <sup>2</sup> ·°F) at 68F	57.1 W/m·°K at 20° C
Coefficient of Thermal Expansion	9.90·10 <sup>-6</sup> per °F (68-572° F)	17.8·10 <sup>-6</sup> per °C (20-300° C)
Specific Heat Capacity	0.090 Btu/lb/°F at 68° F	377.1 J/kg·°K at 293° K
Modulus of Elasticity in Tension	17000 ksi	117000 MPa
Modulus of Rigidity	6400 ksi	44130 MPa

## Tempers Most Commonly Used

Flat Products	
BAR, ROLLED	H01, H02, H04, H06, H08, O50, O60
PLATE	H01, H02, H04, H06, H08, O50, O60
SHEET	H01, H02, H04, H06, H08, O50, O60
STRIP, ROLLED	H01, H02, H04, H06, H08, O50, O60

Other	
ROD	H02, H04, H06, O60
TUBE	H58, H80, O60, OS015
WIRE	H00, H01, H02, H04, H06, O60

## 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

## Casting Characteristics

No casting characteristics available for this alloy.