



# Specification Sheet

Last Modified: May 27, 2017

## C65500

High-Silicon Bronze A

### Chemical Composition

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

	Cu <sup>(1)</sup>	Fe	Pb	Mn	Ni <sup>(2)</sup>	Si	Zn
Min./Max.	Rem.	0.8	0.05	.50-1.3	0.6	2.8-3.8	1.5
Nominal	97	-	-	0.9	-	3	-

Note: Cu + Sum of Named Elements, 99.7% min.

### Applicable Specifications

Product	Specification
Bar	ASTM B36 SAE J463, J461
Plate	ASTM B36
Rod	SAE J463, J461
Sheet	ASTM B36 SAE J463, J461
Strip	ASTM B36 SAE J461, J463
Tube, Welded	ASTM B587
Wire	SAE J461, J463
Wire, Metallizing	MILITARY MIL-W-6712

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## Applicable Specifications (cont'd)

Product	Specification
Rod, Forging	ASTM B124
Screws	ASTM F468
Shapes	ASME SB98 ASTM B98 SAE J463, J461
Shapes, Forging	ASTM B124
Sheet	ASME SB96 ASTM B96 SAE J461, J463
Sheet, Bridge and Bearing	ASTM B100
Sheet, Pressure Vessels	ASME SB96 ASTM B96
Strip	ASME SB96 ASTM B96 SAE J463, J461
Studs	ASTM F468
Tube	ASME SB315 ASTM B315 MILITARY MIL-T-8231
Wire	ASTM B99, B105

## Common Fabrication Processes

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



## Fabrication Properties

Joining Technique	Suitability
Soldering	Good
Brazing	Excellent
Oxyacetylene Welding	Good
Gas Shielded Arc Welding	Excellent
Coated Metal Arc Welding	Fair
Spot Weld	Excellent
Seam Weld	Excellent
Butt Weld	Excellent
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Formed	Excellent
Forgeability Rating	40
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	1300	705
Annealing Time		
Hot Works Minimum	1300	705
Hot Works Maximum	1600	872





## Physical Properties

Property	US Customary	Metric
Melting Point - Liquidus	1880 F	1027 C
Melting Point - Solidus	1780 F	971 C
Density	0.308 lb/in <sup>3</sup> at 68 F	8.53 gm/cm <sup>3</sup> @ 20 C
Specific Gravity	8.53	8.53
Electrical Resistivity	148 ohms-cmil/ft @ 68 F	24.6 microhm-cm @ 20 C
Electrical Conductivity	7 %IACS @ 68 F	0.041 MegaSiemens/cm @ 20 C
Thermal Conductivity	21 Btu · ft/(hr · ft <sup>2</sup> ·°F) at 68F	36.3 W/m · °K at 20 C
Coefficient of Thermal Expansion	10 · 10 <sup>-6</sup> per °F (68-572 F)	18.0 · 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	15000 ksi	103400 MPa
Modulus of Rigidity	5600 ksi	38610 MPa

## Tempers Most Commonly Used

Flat Products	
PLATE	M20
SHEET	M20
STRIP, ROLLED	H01, H02, H04, H06, H08, OS015, OS035, OS070
WIRE, ROLLED	H02, H06

Other	
ROD	H02, H04, H06, OS050
TUBE	H58, H80, OS050
WIRE	H00, H01, H02, H04, H08, OS015, OS035

## Typical Uses

### Consumer

Sculpture

### Electrical

Pole Line Hardware, Motors, Rotor Bar

### Fasteners

Clamps, Hinges, Bolts, Burrs, Screws, Cotter Pins, Nails, Nuts, Rivets

### Industrial

Shafting, Butts, Oil Refinery Plumbing Tube, Wear Plates, Welded Pressure Vessels, Welded Tanks, Pressure Vessels, Doctor Blades, Paper Industry, Screen Plates, Tanks, Screen Cloth, Piston Rings, Kettles, Heat Exchanger Tubes, Chemical Equipment, Channels, Cable, Bushings, Bearing Plates, Hydraulic Pressure Lines, Wire



### Typical Uses (cont'd)

#### Marine

Hardware, Propeller Shafts

### Casting Characteristics

No casting characteristics for this alloy.