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PRODUCT DATA SHEET

Silicon Bronze

UNS C65500

High-Silicon Bronze A, Cusilman Bronze

Copper Alloys

Chemical Composition

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

	Copper	Iron	Lead	Manganese	Nickel	Silicon	Zinc
Min./Max.	Remainder	0.8	0.05	0.50 - 1.3	0.6	2.8 - 3.8	1.5
Nominal	97.0	-	-	0.9	-	3.0	-

(1) Copper value includes silver

(2) Nickel value includes cobalt

Note: Copper + Sum of Named Elements, 99.5% minimum.

Applicable Specifications

Product	Specification	Product	Specification
Bar	SAE J461, J463	Rod	ASME SB98 ASTM B98 SAE J461, J463
Bar, Forging	ASTM B124	Rod, Forging	ASTM B124
Bar, Rolled	ASME SB98 ASTM B96, B98 SAE J461, J463	Screws	ASTM F468
Bar, Rolled, Pressure Vessels	ASME SB96 ASTM B96	Shapes	ASME SB98 ASTM B98 SAE J461, J463
Bolts	ASTM F468	Shapes, Forging	ASTM B124
Forgings, Die	ASTM B283	Sheet	ASME SB96 ASTM B96 SAE J461, J463
Nuts	ASTM F467	Sheet, Bridge and Bearing	ASTM B100
Pipe	ASME SB315 ASTM B315	Sheet, Pressure Vessels	ASME SB96 ASTM B96
Plate	ASME SB96 ASTM B96	Strip	ASME SB96 ASTM B96 SAE J461, J463
Plate, Bridge and Bearing	ASTM B100	Studs	ASTM F468
Plate, Clad	ASTM B432	Tube	ASME SB315 ASTM B315 MILITARY MIL-T-8231
Plate, Pressure Vessels	ASME SB96 ASTM B96	Wire	ASTM B105, B99

The technical advice and recommendations made in this Product Data Sheet should not be relied on or acted upon without conducting your own further investigations, including corrosion exposure tests where needed. Please consult current editions of standards for design properties.

Austral Wright Metals assumes no liability in connection with the information in this Product Data Sheet.

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

Working Technique	Suitability	Joining Technique	Suitability	Joining Technique	Suitability
Capacity for Being Cold Worked	Excellent	Soldering	Good	Coated Metal Arc Welding	Fair
Capacity for Being Hot Formed	Excellent	Brazing	Excellent	Spot Weld	Excellent
Forgeability Rating	40	Oxyacetylene Welding	Good	Seam Weld	Excellent
Machinability Rating	30	Gas Shielded Arc Welding	Excellent	Butt Weld	Excellent

Typical Mechanical Properties (room temperature, 20°C)

Temper	Section Size	Cold Work	Temp	Tensile Strength	Yield Strength (0.5% ext. under load)	Elongation	Hardness Rockwell				Hardness Vickers	Shear Strength	Fatigue Strength @10 ⁸ cycles
							B	C	F	30T			
	mm		°C	MPa	MPa	%					HV	MPa	MPa
Flat Products													
H01	1		20	469	241	30	75	-	-	67	138	324	-
H02	1		20	538	310	17	87	-	-	75	170	345	-
H04	1		20	648	400	8	93	-	-	78	192	393	-
H06	1		20	717	414	6	96	-	-	80		414	-
H08	1		20	758	427	4	97	-	-	81		434	-
OS015	1		20	434	207	55	66	-	90	-		310	-
OS035	1		20	414	172	60	62	-	85	-		296	-
OS070	1		20	386	145	63	40	-	76	-		290	-
Rod													
H02	25.4	20	20	538	310	35	85	-	-	-		359	-
H04	25.4	36	20	634	379	22	90	-	-	-		400	-
H06	25.4	50	20	745	414	13	95	-	-	-		427	-
OS050	25.4	0	20	400	152	60	60	-	-	-		296	-
Tube													
H80	1.7	35	20	641	-	22	92	-	-	78		-	-
OS050	1.7	0	20	393	-	70	45	-	-	-		-	-
Wire													
H00	2		20	483	276	35	-	-	-	-		331	-
H01	2		20	552	331	20	-	-	-	-		359	-
H02	2		20	676	393	8	-	-	-	-		400	-
H04	2		20	862	448	5	-	-	-	-		448	200
H08	2		20	1000	483	3	-	-	-	-		483	207
OS035	2		20	414	172	60	-	-	-	-		296	-

Physical Properties

	US Customary	Metric
Melting Point - Liquidus	1880°F	1027°C
Melting Point - Solidus	1780°F	971°C
Density	0.308 lb/in ³ at 68°F	8.53 gm/cm ³ @ 20°C
Specific Gravity	8.53	8.53
Electrical Resistivity	148.0 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	21.0 Btu · ft/(hr · ft ² · °F) at 68F	36.3 W/m · °K at 20°C
Coefficient of Thermal Expansion	10.0 · 10 ⁻⁶ per °F (68-572 F)	18.0 · 10 ⁻⁶ per °C (20-300°C)
Specific Heat Capacity	0.09 Btu/lb/°F at 68 F	376.78 J/kg · °K at 293°K
Modulus of Elasticity in Tension	15,000 ksi	103,400 MPa
Modulus of Rigidity	5,600 ksi	38,610 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 Motors, Rotor Bar, Pole Line Hardware

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

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

Marine Hardware, Propeller Shafts