



C54400

Phosphor Bronze B-2

Chemical Composition

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

	Cu	Fe	Pb	P	Sn	Zn
Min./Max.	Rem.	0.1	3.0-4.0	.01-.50	3.5-4.5	1.5-4.5
Nominal	88	-	3.8	0.25	4	3

Note: Cu + Sum of Named Elements, 99.5% min.

Applicable Specifications

Product	Specification
Bar	ASTM B103, B139 SAE J463, J461
Bearings and Bushings	MILITARY MIL-B-13501
Plate	ASTM B103
Rod	ASTM B139 SAE J463, J461
Shapes	ASTM B139
Sheet	ASTM B103 SAE J461, J463
Strip	AMS 4520 ASTM B103 SAE J461, J463

Common Fabrication Processes

Blanking, Drawing, Forming and Bending, Machining, Shearing, Stamping

Millard Wire & Specialty Strip Co.

449 Warwick Industrial Drive • Warwick, RI 02886

Phone: (401) 737-9330 • Fax: (401) 737-9340



Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Not Recommended
Spot Weld	Not Recommended
Seam Weld	Not Recommended
Butt Weld	Fair
Capacity for Being Cold Worked	Good
Machinability Rating	80

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		
Hot Works Maximum		



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
						ksi	ksi	ksi		%	B	C	F	30T	500	500	3000	ksi	ksi	ft-lb
	in.	%		F	ksi	ksi	ksi	ksi	%	B	C	F	30T	500	500	3000	ksi	ksi	ft-lb	
	mm.			C	MPa	MPa	MPa	MPa									MPa	MPa	J	
Flat Products																				
H02	0.04	0	TYP	68	58	40	-	-	24	68	-	-	-	-	-	-	-	-	0	
	1			20	400	276	-	-	24	68	-	-	-	-	-	-	-	-	0	
OS035	0.04	0	TYP	68	44	19	-	-	50	-	-	65	-	-	-	-	-	-	0	
	1			20	303	131	-	-	50	-	-	65	-	-	-	-	-	-	0	
Rod																				
H04	0.5	35	TYP	68	75	63	-	-	15	83	-	-	-	-	-	-	-	-	0	
	12.7			20	517	434	-	-	15	83	-	-	-	-	-	-	-	-	0	
H04	1	25	TYP	68	68	57	-	-	20	80	-	-	-	-	-	-	-	-	0	
	25.4			20	469	393	-	-	20	80	-	-	-	-	-	-	-	-	0	

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

Physical Properties

Property	US Customary	Metric
Melting Point - Liquidus	1830° F	999° C
Melting Point - Solidus	1700° F	927° C
Density	0.320 lb/in ³ at 68° F	8.89 gm/cm ³ @ 20° C
Specific Gravity	8.89	8.89
Electrical Resistivity	54.60 ohms-cmil/ft @ 68° F	9.08 microhm-cm @ 20° C
Electrical Conductivity	19 %IACS @ 68° F	0.111 MegaSiemens/cm @ 20° C
Thermal Conductivity	50 Btu·ft/(hr·ft ² ·°F) at 68°F	86.5 W/m·°K at 20° C
Coefficient of Thermal Expansion	$9.60 \cdot 10^{-6}$ per °F (68-572° F)	$17.3 \cdot 10^{-6}$ 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	
STRIP, ROLLED	H02, OS035

Other	
ROD	H04
SHAPES	M30



Typical Uses

Electrical

Electrical Connectors

Industrial

Bushings, Gears, Pinions, Screw Machine Products, Thrust Washers, Valve Parts, Sleeve Bearings, Thrust Bearings, Bearings, Shafts

Casting Characteristics

No casting characteristics available for this alloy.