



C23000

Red Brass, 85%

Chemical Composition

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

	Cu	Fe	Pb	Zn
Min./Max.	84.0-86.0	0.05	0.05	Rem.
Nominal	85	-	-	15

Note: Cu + Sum of Named Elements, 99.8% min.

Applicable Specifications

Product	Specification
Bar	ASTM B36
Fittings	ASME B16.29, B16.22
Nipples	ASTM B687
Pipe	ASME SB43 ASTM B698, B43
Plate	ASTM B36
Sheet	ASTM B36 SAE J461, J463
Strip	ASTM B888, B36 SAE J463, J461
Tube	ASTM B569, B698
Tube, Condenser	ASME SB111 ASTM B111
Tube, Finned	ASME SB359 ASTM B359
Tube, Seamless	AMS 4553 ASME SB135 ASTM B135 FEDERAL WW-T-791 MILITARY MIL-T-20168 SAE J461, J463
Tube, U-Bend	ASME SB395 ASTM B395
Tube, Welded	ASME SB543 ASTM B587, B543
Wire	ASTM B134

Millard Wire & Specialty Strip Co.

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Common Fabrication Processes

Blanking, Coining, Drawing, Etching, Forming and Bending, Heading and Upsetting, Piercing and Punching, Roll Threading and Knurling, Shearing, Spinning, Squeezing and Swaging, Stamping

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Not Recommended
Spot Weld	Not Recommended
Seam Weld	Not Recommended
Butt Weld	Good
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Formed	Good
Machinability Rating	20

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	800	427
Annealing Maximum	1350	733
Annealing Time		
Hot Works Minimum	1450	788
Hot Works Maximum	1650	900



C23000 Specification Sheet

Mechanical Properties

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

Temper	Section Size	Cold Work	Typ/Min	Temp	Tensile Strength	Yield Strength	Yield Strength	Yield Strength	EI	Rockwell Hardness				Vickers Hardness	Brinell Hardness		Shear Strength	Fatigue Strength	Izod Impact Strength
						(0.5% ext. under load)	(0.2% offset)	(0.05% offset)		B	C	F	30T	500	500	3000	ksi	ksi	ft-lb
						ksi	ksi	ksi		%								ksi	ksi
Flat Products																			
OS015	0.04	0	TYP	68	45	18	-	-	42	-	-	71	38	-	-	-	33	-	0
	1			20	310	124	-	-	42	-	-	71	38	-	-	-	228	-	0
H02	0.04	0	TYP	68	57	49	-	-	12	65	-	-	60	-	-	-	37	-	0
	1			20	393	338	-	-	12	65	-	-	60	-	-	-	255	-	0
M20	0	0	TYP	68	42	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	0			20	299	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Wire																			
H00	0.08	0	TYP	68	50	-	-	-	25	-	-	-	-	-	-	-	35	20	0
	2			20	345	-	-	-	25	-	-	-	-	-	-	-	241	138	0
H01	0.08	0	TYP	68	59	-	-	-	11	-	-	-	-	-	-	-	38	-	0
	2			20	407	-	-	-	11	-	-	-	-	-	-	-	262	-	0
Flat Products																			
H06	0.04	0	TYP	68	78	61	-	-	4	83	-	-	72	-	-	-	44	-	0
	1			20	538	421	-	-	4	83	-	-	72	-	-	-	303	-	0
OS035	0.04	0	TYP	68	41	14	-	-	46	-	-	63	22	-	-	-	31	-	0
	1			20	283	97	-	-	46	-	-	63	22	-	-	-	214	-	0
Pipe																			
OS015	0	0	TYP	68	44	18	-	-	45	-	-	71	-	-	-	-	-	-	0
	0			20	303	124	-	-	45	-	-	71	-	-	-	-	-	-	0
Tube																			
H80	0.065	35	TYP	68	70	58	-	-	8	77	-	-	68	-	-	-	-	-	0
	1.65			20	483	400	-	-	8	77	-	-	68	-	-	-	-	-	0
Flat Products																			
H04	0.04	0	TYP	68	70	57	-	-	5	77	-	-	68	-	-	-	42	-	0
	1			20	483	393	-	-	5	77	-	-	68	-	-	-	290	-	0
Wire																			
OS015	0.08	0	TYP	68	45	-	-	-	-	-	-	-	-	-	-	-	33	-	0
	2			20	310	-	-	-	-	-	-	-	-	-	-	-	228	-	0
Flat Products																			
H08	0.04	0	TYP	68	84	63	-	-	3	86	-	-	74	-	-	-	46	-	0
	1			20	579	434	-	-	3	86	-	-	74	-	-	-	317	-	0
Wire																			
H08	0.08	0	TYP	68	105	-	-	-	-	-	-	-	-	-	-	-	54	-	0
	2			20	724	-	-	-	-	-	-	-	-	-	-	-	372	-	0
Flat Products																			
OS070	0.04	0	TYP	68	39	10	-	-	48	-	-	56	10	-	-	-	31	-	0
	1			20	269	69	-	-	48	-	-	56	10	-	-	-	214	-	0
Tube																			
H55	0.065	15	TYP	68	50	40	-	-	30	55	-	-	54	-	-	-	-	-	0
	1.65			20	345	276	-	-	30	55	-	-	54	-	-	-	-	-	0
Wire																			
OS035	0.08	0	TYP	68	41	-	-	-	48	-	-	-	-	-	-	-	31	-	0
	2			20	283	-	-	-	48	-	-	-	-	-	-	-	214	-	0
H04	0.08	0	TYP	68	88	-	-	-	6	-	-	-	-	-	-	-	48	-	0
	2			20	607	-	-	-	6	-	-	-	-	-	-	-	331	-	0
Flat Products																			
OS050	0.04	0	TYP	68	40	12	-	-	47	-	-	59	14	-	-	-	31	-	0
	1			20	276	83	-	-	47	-	-	59	14	-	-	-	214	-	0
Wire																			
OS025	0.08	0	TYP	68	43	-	-	-	-	-	-	-	-	-	-	-	32	-	0
	2			20	296	-	-	-	-	-	-	-	-	-	-	-	221	-	0
H02	0.08	0	TYP	68	72	-	-	-	8	-	-	-	-	-	-	-	43	-	0
	2			20	496	-	-	-	8	-	-	-	-	-	-	-	296	-	0

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



Mechanical Properties (cont'd)

Temper	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)	El	Rockwell Hardness				Vickers Hardness	Brinell Hardness			Shear Strength	Fatigue Strength	Izod Impact Strength
										B	C	F	30T		500	500	3000			
	in.	%		F	ksi	ksi	ksi	ksi	%								ksi	ksi	ft-lb	
	mm.			C	MPa	MPa	MPa	MPa									MPa	MPa	J	
Tube																				
OS050	0.065	0	TYP	68	40	12	-	-	55	-	-	60	15	-	-	-	-	-	0	
	1.65			20	276	83	-	-	55	-	-	60	15	-	-	-	-	-	0	
OS015	0.065	0	TYP	68	44	18	-	-	45	-	-	71	38	-	-	-	-	-	0	
	1.65			20	303	124	-	-	45	-	-	71	38	-	-	-	-	-	0	
Flat Products																				
OS025	0.04	0	TYP	68	43	16	-	-	44	-	-	66	28	-	-	-	32	-	0	
	1			20	296	110	-	-	44	-	-	66	28	-	-	-	221	-	0	
H01	0	0	TYP	68	49	-	-	-	-	45	-	-	48	-	-	-	-	-	0	
	0			20	338	-	-	-	-	45	-	-	48	-	-	-	-	-	0	

Physical Properties

Property	US Customary	Metric
Melting Point - Liquidus	1880° F	1027° C
Melting Point - Solidus	1810° F	988° C
Density	0.316 lb/in ³ at 68° F	8.75 gm/cm ³ @ 20° C
Specific Gravity	8.75	8.75
Electrical Resistivity	28 ohms-cmil/ft @ 68° F	4.65 microhm-cm @ 20° C
Electrical Conductivity	37 %IACS @ 68° F	0.216 MegaSiemens/cm @ 20° C
Thermal Conductivity	92 Btu·ft/(hr·ft ² ·°F) at 68°F	159.2 W/m·°K at 20° C
Coefficient of Thermal Expansion	10.40·10 ⁻⁶ per °F (68-572° F)	18.7·10 ⁻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	17000 ksi	117000 MPa
Modulus of Rigidity	6400 ksi	44130 MPa

Tempers Most Commonly Used

Flat Products	
SHEET	H02, OS050
STRIP, ROLLED	H01, H02, H04, H06, H08, OS015, OS025, OS035, OS050, OS070

Other	
PIPE	OS015
TUBE	H55, H58, H80, OS015, OS070
WIRE	H00, H01, H02, H04, H08, OS015, OS025, OS035



Typical Uses

Architecture

Trim, Etching Parts, Weather Strip

Builders Hardware

Kick Plates

Consumer

Rouge Boxes, Dials, Coinage, Tokens, Lipstick Containers, Fire Extinguisher Cases, Costume Jewelry, Compacts, Plaques, Medallions, Nameplates, Badges, Zippers

Electrical

Rotor Bars, AC Motors, Sockets, Screw Shells, Conduit

Fasteners

Eyelets, Fasteners

Industrial

Condenser Tubes, Pickling Crates, Radiator Cores, Heat Exchangers, Flexible Metal Hose, Fire Extinguishers, Pump Cylinder Liners, Tags, Tubing for Heat Exchangers, Tubing for Instrumentation, Heat Exchanger Shells

Other

Fire Hose Couplings

Plumbing

Pump Lines, Pipe, Service Lines, J-Bends, Traps, Pipe Service Lines, Pipe Nipples, Fittings

Casting Characteristics

No casting characteristics available for this alloy.