



# CALIFORNIA METAL-X BRASS & BRONZE INGOT

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Sb	Ni	S	P	Al	Si	Mn	B	As
<b>RED &amp; SEMI RED BRASSES</b>																	
Percentages are maximums unless otherwise noted.																	
833		Contact Metal	93-1½-1½-4	92.0-94.0	1.0-2.0	1.0-2.0	2.0-6.0	—	—	—	—	—	—	—	—	—	—
8345		Oshalloy	88-2½-2-6½-1N1	87.0-89.0	2.0-3.5	1.5-3.0	5.5-7.5	0.30	0.25	.8-1.5	0.08	0.03	0.005	0.005	—	—	—
<b>BISMUTH TIN BRONZE</b>																	
Percentages are maximums unless otherwise noted.																	
M030020 R1		Yellow Brass		59.5 - 60.5	.05 - .10	0.25	37 - 39	.05 - .10	0.05	0.3	—	—	.65 - .75	0.01	.90 - 1.0	.0010 - .0012	—
M030042		Yellow Brass		61.5 - 62.5	0.40	1.80 - 2.0	34 - 37	.06 - .11	0.05	.08 - .15	—	—	.60 - .70	0.015	.0010 - .0012	.11 - .15	—
89833		Lead-free bronze	89-5-5-2Bi	86.0-91.0	4.0-6.0	0.09	4.0 - 6.0	0.30	0.25	1.0	0.10	0.30	0.005	0.005	1.7 - 2.7	—	—
89836		Lead-free bronze	89-5-3-2Bi	86.0-91.0	4.0-6.0	0.09	2.0 - 4.0	0.20	0.25	1.0	0.30	0.05	0.005	0.005	1.7 - 2.7	—	—
<b>YELLOW BRASSES</b>																	
Percentages are maximums unless otherwise noted.																	
852	400	Yellow Brass	72-1-3-24	70.0-74.0	7-2.0	1.5-3.8	20.0-27.0	0.6	0.20	1.0	0.05	0.02	0.005	0.05	—	—	—
854	403	Ylw Brss w/Alum	67-1-3-29	65.0-70.0	.50-1.5	1.5-3.8	24.0-32.0	0.7	—	1.0	—	—	0.35	0.05	—	—	—
857	405.2	Yellow Brass	61-1-1-37	58.0-64.0	.50-1.5	.8-1.5	32.0-40.0	0.7	—	1.0	—	—	0.8	0.05	—	—	—
858	405.1	Yellow Brass	62-1-1-36	57.0 Min.	1.5	1.5	31.0-41.0	0.5	0.05	0.5	0.05	0.01	0.55	0.25	0.25	—	—
<b>MANGANESE BRONZES</b>																	
Percentages are maximums unless otherwise noted.																	
862	423	High Tensile	63-27-3-4-3	60.0-66.0	0.20	0.20	22.0-28.0	2.0-4.0	—	1.0	—	—	3.0-4.9	—	2.5-5.0	—	—
863	424	High Tensile	61-27-3-6-3	60.0-66.0	0.20	0.20	22.0-28.0	2.0-4.0	—	1.0	—	—	5.0-7.5	—	2.5-5.0	—	—
864	420	Low Tensile	58-1-39-1-1-5	56.0-62.0	0.5-1.5	0.5-1.5	34.0-42.0	.40-2.0	—	1.0	—	—	.50-1.5	—	.10-1.0	—	—
865	421	Low Tensile	58-39-1-1-1	55.0-60.0	1.0	0.40	36.0-42.0	.40-2.0	—	1.0	—	—	.50-1.5	—	.10-1.5	—	—
867	422	High Tensile	57-38-2-2-1	55.0-60.0	1.5	.5-1.5	30.0-38.0	1.0-3.0	—	1.0	—	—	1.0-3.0	—	.10-3.0	—	—
<b>SILICON BRONZES</b>																	
Percentages are maximums unless otherwise noted.																	
873	500	Everdur	95-1-4	94.0 Min.	—	< .05	0.25	0.20	—	—	—	< .01	< .01	3.5-4.5	.8-1.5	—	—
875	500	Tombasil	82-14-4	79.0 Min.	—	< .05	12.0-16.0	—	—	—	—	< .01	< .01	3.0-5.0	—	—	—
875M	500	Modified Tombasil	80-18-2	77.0 Min.	—	< .05	16.0-18.5	—	—	—	—	< .01	< .01	1.5-2.5	—	—	—
876	500	Herculoy	91-5-4	88.0 Min.	—	< .05	4.0-7.0	0.20	—	—	—	< .01	< .01	3.5-5.5	0.25	—	—
87610	500	92-4-4	92-4-4	90.0 Min.	—	< .05	3.0-5.0	0.20	—	—	—	< .01	< .01	3.0-5.0	0.25	—	—
87850		76-22-3	76-22-3	74 - 78	0.30	0.09	20 - 24	0.10	—	0.20	—	.05 - .20	< .01	2.7-3.4	0.10	—	—
<b>TIN BRONZES</b>																	
Percentages are maximums unless otherwise noted.																	
903	225	Navy G	88-8-0-4	86.0-89.0	7.5-9.0	0.30	3.0-5.0	0.20	0.20	1.0	0.05	0.05	0.005	0.005	—	—	—
905	210	Tin Bronze	88-10-0-2	86.0-89.0	9.0-11.0	0.30	1.0-3.0	0.20	0.20	1.0	0.05	0.05	0.005	0.005	—	—	—
907	205	Tin Bronze	89-11	88.0-90.0	10.0-12.0	0.30	0.50	0.15	0.20	0.50	0.05	0.30	0.005	0.005	—	—	—
911		Tin Bronze	84-16	82.0-85.0	15.0-17.0	0.25	0.25	0.25	0.20	0.8	0.05	1.0	0.005	0.005	—	—	—
913	194	Tin Bronze	81-19	79.0-82.0	18.0-20.0	0.25	0.25	0.25	0.20	0.50	0.05	1.0	0.005	0.005	—	—	—
<b>LEADED TIN BRONZES</b>																	
Percentages are maximums unless otherwise noted.																	
922	245	Navy M	88-6-1½-4½	86.0-90.0	5.8-6.5	1.0-1.8	3.5-5.0	0.20	0.20	0.8	0.05	0.03	0.005	0.005	—	—	—
927	206	Leaded Tin Brz	88-10-2-0	86.0-89.0	9.3-11.0	1.0-2.3	0.8	0.15	0.20	0.8	0.05	0.30	0.005	0.005	—	—	—
932	315	Leaded Tin Brz	83-7-7-3	82.0-84.0	6.5-7.5	6.5-7.5	2.5-4.0	0.20	0.30	0.8	0.08	0.03	0.005	0.005	—	—	—
937	305	Bearing Brz	80-10-10	78.0-81.0	9.3-10.7	8.3-10.7	0.8	0.1	0.50	0.8	0.08	0.05	0.005	0.005	—	—	—
<b>ALUMINUM BRONZES</b>																	
Percentages are maximums unless otherwise noted.																	
952	415A	Alum Bronze	88-3-9	86.0 Min.	—	—	—	2.5-4.0	—	—	—	—	8.5-9.5	—	—	—	—
953	415B	Alum Bronze	89-1-10	86.0 Min.	—	—	—	.80-1.5	—	—	—	—	9.0-11.0	—	—	—	—
954	415C	Alum Bronze	85-4-11	83.0 Min.	—	—	—	3.0-5.0	—	1.5	—	—	10.0-11.5	—	0.50	—	—
955	415D	Alum Bronze	81-4-4-11	78.0 Min.	—	—	—	3.0-5.0	—	3.0-5.5	—	—	10.0-11.5	—	3.50	—	—
957	415F	Superstone	75-2-3-8-12	71.0 Min.	—	—	—	2.0-4.0	—	1.5-3.0	—	—	7.0-8.5	0.10	11.0-14.0	—	—
958	415	Alum Bronze	81-4-5-9-1	79.0 Min.	—	—	—	3.5-4.5	—	4.0-5.0	—	—	8.5-9.5	0.05	.8-1.5	—	—
<b>NICKEL SILVERS</b>																	
Percentages are maximums unless otherwise noted.																	
973	410	Nickel Silver	12% Nickel	53.0-58.0	1.5-3.0	10.00	17.0-25.0	1.50	0.35	11.0-14.0	0.08	0.05	0.005	0.15	0.50	—	—
976	412	Nickel Silver	20% Nickel	63.0-67.0	3.5-4.5	3.0-5.0	3.0-9.0	1.50	0.25	19.0-21.5	0.08	0.05	0.005	0.15	1.0	—	—
<b>SPECIAL ALLOYS</b>																	
Percentages are maximums unless otherwise noted.																	
964		70/30 Cu/Ni	B122, B466	Rem.	0.01	—	—	.25 - 1.50	.50 - 1.50	28.0 - 32.0	0.02	0.02	—	0.5	1.5	—	—
995		NDZ Alloy	87-4-4½-1-1-1	Rem.	—	0.25	.50-2.0	3.0-5.0	—	3.5-5.5	—	—	.50-2.0	.50-2.0	0.50	—	—
997		White Tombasil	58-22-5-12-1-1	54.0 Min.	1.0	2.0	19.0-25.0	1.0	—	4.0-6.0	—	—	.50-3.0	—	11.0-15.0	—	—
9975		White Brass	58-20-0-20-1-1	55.0-61.0	.5-2.5	.5-2.5	17.0-23.0	1.0	—	5.0	—	—	.25-3.0	—	17.0-23.0	—	—
<b>SOME COMMON YARD ALLOYS</b>																	
Percentages are maximums unless otherwise noted.																	
110		Electrolytic	B187, B124	99.9	—	—	—	—	—	—	—	—	—	—	—	—	—
122		Phosphorized	B187, B124	99.9	—	—	—	—	—	—	—	—	.015-.04	—	—	—	—
170		Beryllium Copper	B194, B196	Rem.	—	—	—	—	1.6-1.79	0.20	—	—	0.20	0.20	—	—	—
172		Beryllium Copper	B194, B196	Rem.	0.02	—	—	—	1.8-2.0	0.20	—	—	0.20	0.20	—	—	—
194		High Copper	B640, B543	97 min.	0.03	.05-.20	2.1-2.6	—	—	—	—	—	.015-.15	—	—	—	—
220		90/10 Copper	B36, B134	89.0-91.0	0.05	Rem.	0.05	—	—	—	—	—	—	—	—	—	—
260		70/30 Copper	B36, B134	68.5-71.5	0.07	Rem.	0.05	—	—	—	—	—	—	—	—	—	—
360		Free Cutting Brass	B16	60-63	—	2.5-3.7	Rem.	0.35	—	—	—	—	—	—	—	—	—
425		Phos Bronze	B591, B888	87-90	1.5-3.0	0.05	Rem.	0.05	—	—	—	—	0.35	—	—	—	—
443		Admiralty	B171, B135	70-73	.8-1.2	0.07	Rem.	0.06	—	—	—	—	.02-.06	—	—	—	—
464		Naval Brass	B21, B124	59.0-62.0	5-1.0	0.20	Rem.	0.10	—	—	—	—	—	—	—	—	—
510		Phos Bronze	B103, B139	Rem.	4.2-5.8	0.05	0.30	0.10	—	—	—	—	.03-.35	—	—	—	—
521		Phos Bronze	B103, B139	Rem.	7.0-9.0	0.05	0.20	0.10	—	—	—	—	.03-.35	—	—	—	—
544		Phos Bronze	B103, B139	Rem.	3.5-4.5	3.5-4.5	1.5-4.5	0.10	—	—	—	—	.01-.50	—	—	—	—
655		Silicon Bronze	B98, B99	Rem.	0.8	0.05	1.5	0.8	—	0.6	—	—	—	2.8-3.8	.5-1.3	—	—
706		90/10 Cu/Ni	B111, B395	Rem.	0.05	1.0	1.0-1.8	—	—	9.0-11.0	—	—	—	—	1.0	—	—
710		80/20 Cu/Ni	B122, B466	Rem.	0.05	1.0	1.0	—	—	19.0-23.0	—	—	—	—	1.0	—	—
715		70/30 Cu/Ni	B122, B466	Rem.	0.05	1.0	.4-1.0	—	—	29.0-33.0	—	—	—	—	1.0	—	—
725		Copper Nickel	B122	Rem.	1.8-2.8	0.05	0.5	0.6	—	8.5-10.5	—	—	—	—	0.2	—	—
729		Copper Nickel	B740	Rem.	4.5-5.7	0.05	0.6	0.6	—	20.0-22.0	—	—	—	—	0.6	—	—
745		Nickel Silver	B122, B151	63.5-66.5	—	0.10	Rem.	0.25	—	9.0-11.0	—	—	—	—	0.5	—	—
R-Monel		Alloy 405	Monel 400	28 - 34	—	—	—	2.5	—	63 - 65	0.024	—	—	0.05	2.0	—	—