

**RED & SEMI RED BRASSES**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Sb	As	Ni	S	P	Al	Si
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	88-2½-2-6½-1Ni	87.0-89.0	2.2-3.0	1.5-2.5	5.8-7.5	0.25	0.25		8-1.5	0.08	0.03	0.005	0.005
836	115	Red Brass	85-5-5-5	84.0-86.0	4.3-6.0	4.0-5.7	4.3-6.0	0.25	0.25		0.8	0.08	0.03	0.005	0.005
844	123	Semi-Red	81-3-7-9	78.0-82.0	2.5-3.5	6.3-7.7	7.0-10.0	0.35	0.25		0.8	0.08	0.02	0.005	0.005

**YELLOW BRASSES**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Sb	Ni	Mn	As	S	P	Al	Si
852	400	Yellow Brass	72-1-3-24	70.0-73.0	0.8-1.7	1.5-3.5	21.0-27.0	0.50	0.20	0.8			0.05	0.01	0.005	0.05
854	403	Yellow Brass w/ Alum	67-1-3-29	66.0-69.0	0.50-1.5	1.5-3.5	25.0-31.0	0.50		0.8					0.35	0.05
857	405.2	Yellow Brass	61-1-1-37	58.0-63.0	0.50-1.5	8-1.5	33.0-40.0	0.50		0.8					0.8	0.05
858	405.1	Yellow Brass	62-1-1-36	57.0 Min.	1.5	1.5	31.0-41.0	0.50	0.05	0.50	0.25	0.05	0.05	0.01	0.50	0.25

**MANGANESE BRONZES**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Ni	Al	Mn	Si
861	423	High Tensile	67-21-3-5-4	66.0-68.0	0.1	0.1	Rem.	2.0-4.0		4.5-5.5	2.5-5.0	
862	423	High Tensile	63-27-3-4-3	60.0-66.0	0.1	0.1	22.0-28.0	2.0-4.0	0.8	3.0-4.9	2.5-5.0	
863	424	High Tensile	61-27-3-6-3	60.0-66.0	0.1	0.1	22.0-28.0	2.0-4.0	0.8	5.0-7.5	2.5-5.0	
864	420	Low Tensile	58-1-39-1-1-5	56.0-62.0	0.50-1.0	0.50-1.3	34.0-42.0	0.40-2.0	0.8	0.50-1.5	0.10-1.0	
865	421	Low Tensile	58-39-1-1-1	55.0-60.0	1.0	0.30	36.0-42.0	0.40-2.0	0.8	0.50-1.5	1.5	
867	422	High Tensile	57-38-2-2-1	55.0-60.0	1.5	0.50-1.5	30.0-38.0	1.0-3.0	0.8	1.0-3.0	3.5	

**SILICON BRONZES**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Al	Si	Mn	As	Mg
873	500	Everdur	95-1-4	94.0 Min.		0.05	0.25	0.20		3.5-4.5	8-1.5		
875	500	Tombasil Modified	82-14-4	79.0 Min.		0.05	12.0-16.0		0.5	3.0-5.0			
875M	500	Tombasil	80-18-2	77.0 Min.		0.05	16.0-18.5		< .10	1.5-2.5			
876	500	Herculoy	91-5-4	88.0 Min.		0.05	4.0-7.0	0.20	< .10	3.5-5.5	0.25		
87610	500	92-4-4	92-4-4	90.0 Min.		0.05	3.0-5.0	0.20	< .10	3.0-5.0	0.25		
878		Die-Cast Tombasil	82-14-4	80.0 Min.	0.25	0.05	12.0-16.0	0.15	0.15	3.0-4.2	0.15	0.05	0.01
87580		Ecobrass	76-20½-3-0-12P	75.0-78.0	0.30	0.05	Rem.	0.10	0.10	2.7-3.4			0.05-0.20

**BISMUTH TIN BRONZE / BISMUTH SELENIUM BRASS**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Sb	Ni	S	P	Al	Si	Bi	Se
89320		Lead-Free Bronze	89-6-5Bi	87.0-91.0	5.0-7.0	0.09	1.0	0.20	0.35	1.0	0.08	0.30	0.005	0.005	4.0-6.0	
89520		EnviroBrassII	86-5½-5-1.9-0.9	85.0-87.0	5.0-6.0	0.25	4.0-6.0	0.20	0.25	1.0	0.08	0.05	0.005	0.005	1.6-2.2	0.8-1.1

**TIN BRONZES**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Sb	Ni	S	P	Al	Si
903	225	Navy G	88-8-0-4	86.0-89.0	7.8-9.0	0.25	3.5-5.0	0.15	0.20	0.8	0.05	0.03	0.005	0.005
905	210	Tin Bronze	88-10-0-2	86.0-89.0	9.5-10.5	0.25	1.5-3.0	0.15	0.20	0.8	0.05	0.03	0.005	0.005
907	205	Tin Bronze	89-11	88.0-90.0	10.3-12.0	0.50	0.50	0.15	0.20	0.50	0.05	0.03	0.005	0.005
911		Tin Bronze	84-16	82.0-85.0	15.3-17.0	0.25	0.25	0.15	0.20	0.50	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

**LEADED TIN BRONZES**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Sb	Ni	S	P	Al	Si
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	0.25	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	0.25	0.005	0.005
932	315	Brz	83-7-7-3	82.0-84.0	6.5-7.5	6.5-7.7	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	0.10	0.50	0.50	0.08	0.05	0.005	0.005
943	322	High Pb Tin Brz	70-5-25	69.0-72.0	4.7-5.8	23.0-27.0	0.8	0.10	0.70	0.8	0.08	0.05	0.005	0.005

**ALUMINUM BRONZES**

CA#	Ingot #	Description	Nom.	Cu	Pb	Fe	Ni	Al	Mn	Si	Zn	Sn
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.		0.80-1.5		9.0-11.0				
954	415C	Alum Bronze	85-4-11	83.0 Min.		3.0-5.0	1.5	10.0-11.5	0.5			
955	415D	Alum Bronze	81-4-4-11	78.0 Min.		3.0-5.0	3.0-5.5	10.0-11.5	3.5			
957	415F	Superstone	75-2-3-8-12	71.0 Min.		2.0-4.0	1.5-3.0	7.0-8.5	11.0-14.0	0.1		
958	415	Alum Bronze	81-4-5-9-1	79.0 Min.	0.02	3.5-4.5	4.0-5.0	8.5-9.5	0.8-1.5	0.05		

**NICKEL SILVERS**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Sb	Ni	S	P	Al	Si	Mn
973	410	Nickel Silver	12% Nickel	53.0-58.0	1.5-3.0	8.0-11.0	17.0-25.0	1.0	0.35	11.0-14.0	0.08	0.05	0.005	0.05	0.50
976	412	Nickel Silver	20% Nickel	63.0-66.0	3.5-4.5	3.5-5.0	3.0-9.0	1.0	0.25	19.5-21.5	0.08	0.05	0.005	0.05	1.0

**SPECIAL ALLOYS**

CA#	Ingot #	Description	Nom.	Cu	Sn	Pb	Zn	Fe	Sb	Ni	S	P	Al	Si	Mn
995		NDZ Alloy	87-4-4½-1-1-1	Rem.		0.05	0.50-2.0	3.0-5.0		3.5-5.50			0.50-2.0	0.50-2.0	0.5
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			0.50-3.0		11.0-15.0
9975		White Brass	58-20-0-20-1-1	55.0-61.0		0.5-2.5	17.0-23.0	1.0		5.0			0.25-3.0		17.0-23.0

SOME COMMON YARD ALLOYS

CA#	Ingot #	Description	ASTM	Cu	Sn	Pb	Zn	Fe	Be	Ni	S	P	Al	Si	Mn
110		Electrolytic	B187, B124	99.9											
122		Phosphorized Beryllium	B187, B124	99.9								.015-.04			
170		Copper	B194, B196	Rem.					1.6-1.79	0.2			0.2	0.2	
172		Beryllium Copper	B194, B196	Rem.		0.02			1.8-2.0	0.2			0.2	0.2	
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							
443		Admiralty	B171, B135	70-73	.8-1.2	0.07	Rem.	0.06							
464		Naval Brass	B21, B124	59.0-62.0	.5-1.0	0.2	Rem.	0.1							
510		Phos Bronze	B103, B139	Rem.	4.2-5.8	0.05	0.3	0.1				.03-.35			
521		Phos Bronze	B103, B139	Rem.	7.0-9.0	0.05	0.2	0.1				.03-.35			
544		Phos Bronze	B103, B139	Rem.	3.5-4.5	3.5-4.5	1.5-4.5	0.1				.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	1.0-1.8		9.0-11.0					1
710		80/20 Cu/Ni	B122, B466	Rem.		0.05	1	1		19.0-23.0					1
715		70/30 Cu/Ni	B122, B466	Rem.		0.05	1	.4-1.0		29.0-33.0					1
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		20.0-22.0					0.6
745		Nickel Silver	B122, B151	63.5-66.5		0.1	Rem.	0.25		9.0-11.0					0.5