

BRASS AND BRONZE CASTINGS

Many foundries only run a handful of common alloys. At Warner Bros. Foundry Company our reputation is on running a wide range of aluminum and copper based alloys. If you don't see any alloy of interest, listed below, please let us know. We are happy to quote other alloys.

Only the highest quality Certified Ingot is used for the production of our Brass and Bronze casting, continue reading to learn about the properties of these alloys.

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Bronze & Brass Alloys

Typical Bronze & Brass Alloys									...	Suitability for being joined by:		Typical Mechanical Properties							
CA#	Ingot #	Previous Trade Name	Alloy Name	Nominal Composition	ASTM	Federal	Former Federal	Military	Approx. Weight, lb./in.3	Soldering	Brazing	Castability (Ranked 1-8, 1 is the best or highest)	Fluidity (Ranked 1-8, 1 is the best or highest)	Machinability Rating (Free Cutting Brass = 100)	Tensile Strength, ksi	Yield Strength, ksi	Elongation, Percentage in 2 in.	Shear Strength, ksi	Fatigue Strength (100 million cycles), ksi	Brinell Hardness (500-kg Load) *(3000-kg Load)	Shrinkage Allowance	Pattern Maker's Shrinkage
836	115	Red Brass	Composition Bronze	85-5-5-5	B30, B62, B271, B505, B584	QQ-C-525, QQ-C-390	QQ-B-1005, QQ-C-390, QQ-L-225	MIL-C-11866, MIL-C-15345, MIL-C-22087, MIL-C-22229	0.318	Excellent	Good	2	6	84	37	17	30	...	11	60	5.70%	5/32 to 3/16 in./ft
844	123	Semi-Red Brass	Valve Composition	81-3-7-9	B30, B271, B505, B584	QQ-C-525, QQ-C-390	QQ-B-1005, QQ-C-390, QQ-L-225	...	0.314	Excellent	Good	2	6	90	34	15	26	...	...	55	2%	3/16 in./ft
862	423	High Strength Yellow Brass	Manganese Bronze	90,000 Tensile	B30, B22, B271, B505, B584	QQ-C-523, QQ-C-390	QQ-B-726, QQ-C-390	MIL-C-11866, MIL-C-22229	0.288	Poor	Poor	6	2	30	95	48	20	...	...	180	2%	...
863	424	High Strength Yellow Brass	Manganese Bronze	110,000 Tensile	B30, B22, B271, B505, B584	QQ-C-523, QQ-C-390	QQ-B-726, QQ-C-390	MIL-C-11866, MIL-C-15345, MIL-C-22087, MIL-C-22229	0.283	Poor	Poor	6	2	8	119	83	18	...	25	225	2.30%	...
865	421	High Strength Yellow Brass	Manganese Bronze	65,000 Tensile	B30, B176, B271, B505, B584	QQ-C-523, QQ-C-390	QQ-B-726, QQ-C-390	MIL-C-15345, MIL-C-22087, MIL-C-22229	0.301	Fair	Fair	6	2	26	71	28	30	...	20	100	1.90%	1.65% to 2.15%
903	225	Navy G	Tin Bronze	88-8-0-4	B584, B271, B505, B30	QQ-C-390, QQ-C-525	QQ-B-1005, QQ-C-390, QQ-L-225	MIL-C-11866, MIL-C-15345, MIL-C-22087, MIL-C-22229	0.318	Excellent	Excellent	3	6	30	45	21	30	...	...	70	1.5% to 1.8%	...

922	245	Navy M	Tin Bronze	86-6-1.5-4.5	B584, B61, B271, B505, B30	QQ-C-390, QQ-C-525	QQ-B-1005, QQ-C-390, QQ-L-225	MIL-B-16541, MIL-B-15345	0.312	Excellent	Excellent	3	6	42	40	20	30	...	11	65	1.50%	3/16 in./ft
923	230	Leaded Navy G	Tin Bronze	87-8-1-4	B584, B271, B505, B30	QQ-C-390, QQ-C-525	QQ-B-1005, QQ-C-390, QQ-L-225	MIL-C-15345	0.317	Excellent	Good	3	6	42	40	20	25	...	...	70	...	3/16 in./ft
932	315	Bearing Bronze	High Leaded Tin Bronze	83-7-7-3	B584, B271, B505, B30	QQ-C-390, QQ-C-525	QQ-B-1005, QQ-C-390, QQ-L-225	MIL-C-15345	0.322	Excellent	Good	1	6	70	35	18	20	...	16	65	...	7/32 in./ft
952	415A	Ampco A1	Aluminum Bronze	88-3-9	B30, B148, B271, B505	QQ-B-675, QQ-C-390	QQ-B-671, QQ-C-390	MIL-C-22887, MIL-C-22229	0.276	Good	Good	8	5	50	80	27	35	40	22	110*	1.60%	2%
954	415C	Ampco C3	Aluminum Bronze	85-4-11	B30, B148, B271, B505	QQ-B-675, QQ-C-390	QQ-B-671, QQ-C-390	MIL-C-11866, MIL-C-15345	0.269	Good	Good	8	5	60	85	35	18	47	28	175*	1.60%	1.60%
955	415	Ampco D4	Aluminum Bronze	81-4-4-11	B30, B148, B271, B505	QQ-B-675, QQ-C-390	QQ-B-671, QQ-C-390	MIL-C-11866, MIL-C-15345, MIL-C-22087, MIL-C-22229	0.272	Good	Good	8	5	50	95	50	5	...	31	195	1.60%	1.60%

Typical Bronze & Brass Alloys

CA#	Ingot #	Previous Trade Name	Alloy Name	Nominal Composition	Applications
836	115	Red Brass	Composition Bronze	85-5-5-5	Good general-purpose casting alloy. For castings requiring moderate strength, soundness, and good machinability, such as lowpressure valves, pipe fittings, general plumbing hardware
844	123	Semi-Red Brass	Valve Composition	81-3-7-9	Low-pressure valves and fittings, general hardware fittings, plumbing supplies and fixtures.
862	423	High Strength Yellow Brass	Manganese Bronze	90,000 Tensile	Marine castings, gears, gun mounts, bushings and bearings.
863	424	High Strength Yellow Brass	Manganese Bronze	110,000 Tensile	Extra-heavy duty, high strength alloy for gears, cams, bearings, screw-down nuts, bridge parts, hydraulic cylinder parts. (Not to be used in marine, ammonia or high corrosive atmospheres)
865	421	High Strength Yellow Brass	Manganese Bronze	65,000 Tensile	Propeller hubs, blades and other parts in contact with salt and fresh water, gears, liners.
903	225	Navy G	Tin Bronze	88-8-0-4	Bearings, bushings, pump impellers, piston rings, valve components, seal rings, steam fittings, gears
922	245	Navy M	Tin Bronze	86-6-1.5-4.5	Component castings of valves, flanges and fittings, oil pumps, gears, bushings, bearings
923	230	Leaded Navy G	Tin Bronze	87-8-1-4	Strong general-utility structural bronze for use under severe conditions; valves expansion joints, high pressure pipe fittings, steam pressure casting
932	315	Bearing Bronze	High Leaded Tin Bronze	83-7-7-3	General-utility bearings and bushings
952	415A	Ampco A1	Aluminum Bronze	88-3-9	Acid-resisting pumps, bearings, bushings, gears, valve seats, guides, plungers, pump rods, nonsparking hardware
954	415C	Ampco C3	Aluminum Bronze	85-4-11	Pump impellers, bearings, gears, worms, bushings, valve seats and guides, rolling mill slippers, slides, nonsparking hardware

955	415	Ampco D4	Aluminum Bronze	81-4-4-11	A heavy duty, dense, high-strength alloy, with hardness equal to that of manganese bronze, and excellent resistance to corrosion and fatigue. Has good wearing qualities for elevated temperature uses. For gun slides and mountings, for worm wheels and gears, valve seats, bearings and bushings, propeller blades and hubs, liners, and bearing plates subjected to heavy loads, and shaft sleeves in highly stressed shafting.
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