

ALUMINUM BRONZES

CDA NUMBER	C95500		C95800	
Common Name	9D Aluminum Bronze		Nickel Aluminum Bronze	
COMPOSITION PERCENT	Min	Max	Min	Max
Copper (Cu)	78.0		78.0	
Lead (Pb)				0.0
Iron (Fe)	3	5	3.5	4.5
Nickel (Ni)	3	5.5	4	5
Aluminum (Al)	10	11.5	8.5	9.5
Manganese (Mn)			0.8	1.5
Other (Total)				
NEAREST APPLICABLE CASTING STANDARDS				
ASTM (B Series)	B148		B148	
SAE (J Series)	J462		J462	
Federal (QQ-C- Series)	390		390	
Military (Mil-C- Series)	22229		22229	
TYPICAL PROPERTIES	Typ	Min	Typ	Min
Tensile Strength (ksi)	102	890	96	85
Yield Strength (.5% extension under load) (ksi)	44	40	37	35
Elongation (2 inch gauge length) (%)	12	6	25	15
Reduction of Area (%)	10		20	
Proportional Limit (ksi)	31		23	
Modulus of Elasticity (ksi)	19000		19000	
Hardness (Brinell) (HB @ 3000kg)	200		160	
Machinability (% of free cutting brass)	20		20	
Fatigue Strength (10 ⁸ cycles) (ksi)	32		32	
Impact Strength (Charpy) (ft-lb)	10		15	
Impact Strength (Izod) (ft-lb)	13		20	
Shear Strength (ksi)	48		58	
Compressive Strength (0.001 in. set/in.) (ksi)			35	
Compressive Strength (0.010 in. set/in.) (ksi)			48	
Compressive Strength (0.100 in. set/in.) (ksi)	120		100	
Creep Strength (0.00001% per hour) (ksi)	10.5 @ 600F			
Melting Range (Liquidus-Solidus)(F)	1900-1930		1910-1940	
Coefficient of Thermal Expansion (per F @ 68-400F)	0.0000090		0.0000090	
Thermal Conductivity (Btu/sq.ft./hr/F @ 68F)	24.2		20.8	
Specific Heat (Btu/lb/F @ 68F)	0.1		0.105	
Electrical Conductivity (% IACS @ 68F)	8.5		7.1	
Density (lb/cu.in. @ 68F)	0.272		0.276	
Pouring Temperature (Light Castings) (F)	2250-2350		2250-2350	
Pouring Temperature (Heavy Castings) (F)	2150-2250		2150-2250	
Patternmakers Shrinkage (in/ft)	3/16		3/16	
Drossing	High		High	
Gassing	Medium		Medium	
Fluidity	Medium		Medium	
Shrinkage	High		High	
Casting Yield	Low		Low	
Corrosion Resistance:	Outstanding, C95800 the best of all bronzes. C95500 not for strong oxidizing acids.			
Wear Resistance:	Outstanding, C95500 the best of all bronzes.			
Applications:	C95500: Valve guides and seats in aircraft engines, corrosion resistant structural parts, bushings, gears, pickling hardware, pump parts, dies and wear parts. C95800: Propeller blades and hubs for fresh and seawater service, desalination hardware agitated acidic saltwater environments.			

* Not Recommended



All mechanical properties listed are typical and not minimums. Always consult applicable specs and use good engineering judgment. Consult your foundry early in the design process.

St. Paul Brass and Aluminum Foundry

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