

ALUMINUM BRONZES

CDA NUMBER	C95200		C95300		C95400	
Common Name	9A Aluminum Bronze		9B Aluminum Bronze		9C Aluminum Bronze	
COMPOSITION PERCENT	Min	Max	Min	Max	Min	Max
Copper (Cu)	86.0		86.0		83.0	
Iron (Fe)	2.5	4	0.8	1.5	3	5
Antimony (SB)						
Nickel (Ni)						
Sulphur (S)						
Phosphorous (P)						
Aluminum (Al)	8.5	9.5	9	11	10	11.5
Manganese (Mn)						
Silicon (Si)						
Other (Total)						
NEAREST APPLICABLE CASTING STANDARDS						
ASTM (B Series)	B148		B148		B148	
SAE (J Series)	J462 (was 68A)		J462 (was 68B)		J462 (was 68C)	
Federal (QQ-C- Series)	390		390		390	
Military (Mil-C- Series)	22229				22229	
TYPICAL PROPERTIES	Typ	Min	Typ	Min	Typ	Min
Tensile Strength (ksi)	80	65	75	65	90	75
Yield Strength (.5% extension under load) (ksi)	29	25	27	25	37	30
Elongation (2 inch gauge length) (%)	38	20	25	20	17	12
Reduction of Area (%)	30		25		20	
Proportional Limit (ksi)	12		13		17	
Modulus of Elasticity (ksi)	16000		16000		16000	
Hardness (Brinell) (HB @ 3000kg)	120		140		170	
Machinability (% of free cutting brass)	20		30		20	
Fatigue Strength (10 ⁸ cycles) (ksi)	23		22		30	
Impact Strength (Charpy) (ft-lb)	30		23		11	
Impact Strength (Izod) (ft-lb)	35		30		15	
Shear Strength (ksi)	41		41		48	
Compressive Strength (0.001 in. set/in.) (ksi)	30		20			
Compressive Strength (0.100 in. set/in.) (ksi)	70		80		100	
Creep Strength (0.00001% per hour) (ksi)	12 @ 500F				7.3 @ 600F	
Melting Range (Liquidus-Solidus)(F)	1906-1913		1904-1913		1880-1900	
Coefficient of Thermal Expansion (per F @ 68-400F)	0.0000090		0.0000090		0.0000090	
Thermal Conductivity (Btu/sq.ft./hr/F @ 68F)	29.1		36.3		33.9	
Specific Heat (Btu/lb/F @ 68F)	0.09		0.09		0.09	
Electrical Conductivity (% IACS @ 68F)	11		13		13	
Density (lb/cu.in. @ 68F)	0.276		0.272		0.269	
Pouring Temperature (Light Castings) (F)	2050-2200		2050-2200		2100-2250	
Pouring Temperature (Heavy Castings) (F)	2000-2100		2000-2100		2000-2150	
Patternmakers Shrinkage (in/ft)	7/32		7/32		7/32	
Drossing	High		High		High	
Gassing	Medium		Medium		Medium	
Fluidity	Medium		Medium		Medium	
Shrinkage	High		High		High	
Casting Yield	Low		Low		Low	
Corrosion Resistance:	Excellent among all metals. Not for use in oxidizing acids.					
Wear Resistance:	Excellent					
Applications:	Pumps, impellers, gears, worms, bushings, bearings, valve seats, pickling hardware, nuts, rolling mill slippers, marine equipment, welding jaws, non-spark tools, valve bodies.					

* 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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