

SILICON BRASS AND BRONZE

CDA NUMBER	C87200		C87500	
Common Name	12A, Everdur		13B Silicon Brass	
COMPOSITION PERCENT	Min	Max	Min	Max
Copper (Cu)	89.0		79.0	
Tin (Sn)		1.0		
Lead (Pb)		0.5		0.5
Zinc (Zn)		5.0	12.0	16.0
Iron (Fe)		2.5		
Antimony (SB)		8		
Aluminum (Al)		1.5		0.5
Manganese (Mn)		1.5		
Silicon (Si)	1	5	3	5
Other (Total)				
NEAREST APPLICABLE CASTING STANDARDS				
ASTM (B Series)	B584		B584	
SAE (J Series)	J462		J462	
Federal (QQ-C- Series)	390		390	
Military (Mil-C- Series)	22229			
TYPICAL PROPERTIES	Typ	Min	Typ	Min
Tensile Strength (ksi)	55	45	67.8	60
Yield Strength (.5% extension under load) (ksi)	25	18	30	24
Elongation (2 inch gauge length) (%)	30	20	17	16
Reduction of Area (%)			20	
Modulus of Elasticity (ksi)	15000		15400	
Hardness (Brinell) (HB @ 500kg)	85		115	
Machinability (% of free cutting brass)	40		50	
Fatigue Strength (10 ⁸ cycles) (ksi)			22	
Impact Strength (Charpy) (ft-lb)			32	
Impact Strength (Izod) (ft-lb)	33			
Shear Strength (ksi)	28			
Compressive Strength (0.001 in. set/in.) (ksi)	18		26.5	
Compressive Strength (0.010 in. set/in.) (ksi)	60		43	
Compressive Strength (0.100 in. set/in.) (ksi)			83.5	
Creep Strength (0.00001% per hour) (ksi)			11 @ 350F	
Melting Range (Liquidus-Solidus)(F)	1580-1780		1510-1683	
Coefficient of Thermal Expansion (per F @ 68-400F)			0.0000109	
Thermal Conductivity (Btu/sq.ft./hr/F @ 68F)	16.4		16	
Specific Heat (Btu/lb/F @ 68F)	0.09		0.09	
Electrical Conductivity (% IACS @ 68F)	6		6.7	
Density (lb/cu.in. @ 68F)	0.302		0.299	
Pouring Temperature (Light Castings) (F)			1900-2000	
Pouring Temperature (Heavy Castings) (F)			1800-1900	
Patternmakers Shrinkage (in/ft)	1/4		15/64	
Drossing	Low		Low	
Gassing	High		Medium	
Fluidity	High		High	
Shrinkage	Medium		Medium	
Casting Yield	Medium		Medium	
Corrosion Resistance:	Excellent, especially to atmospheric corrosion.			
Applications:	Bearings, bells, impellers, marine fittings, pump parts, statuary, valve stems, rocker arms, small boat propellers. These are the most popular alloys for artwork because of their high fluidity.			

* 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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