

Copper-Silicon Alloy C87610

CDA NUMBER	C87610	
Common Name	Cast Copper Silicon	
COMPOSITION PERCENT	Min	Max
Copper (Cu)	90	
Tin (Sn)		
Lead (Pb)		0.09
Zinc (Zn)	3	5
Iron (Fe)		0.2
Antimony (Sb)		
Nickel (Ni)		1
Sulphur (S)		
Phosphorous (P)		
Aluminum (Al)		0.8
Maganese (Mn)		0.25
Silicon (Si)	3	5
Cu + Sum of Named Elements, 99.5% min		
NEAREST APPLICABLE CASTING STANDARDS		
ASTM (B Series)		
SAE (J Series)		
Federal (QQ-C- Series)		
Military (Mil-C- Series)		
TYPICAL PROPERTIES	Typ	Min
Tensile Strength (ksi)	58	
Yield Strength (.5% extension under load) (ksi)		18
Elongation (2 inch gauge length) (%)	35	
Proportional Limit (ksi)		
Modulus of Elasticity (ksi)	16000	
Hardness (Brinell) (HB @ 500kg)	206	
Machinability (% of free cutting brass)	40	
Fatigue Strength (10 ⁸ cycles) (ksi)		
Impact Strength (Charpy) (ft-lb)		
Impact Strength (Izod) (ft-lb)	33.0	
Shear Strength (ksi)	28	
Compressive Strength (0.001 in. set/in.) (ksi)		
Compressive Strength (0.010 in. set/in.) (ksi)		
Compressive Strength (0.100 in. set/in.) (ksi)		
Creep Strength (0.00001% per hour) (ksi)		
Melting Range (Liquidus-Solidus)(F)	1780-1510	
Coefficient of Thermal Expansion (per F @ 68-400F)	.000011	
Thermal Conductivity (Btu/sq.ft/ft.hr/F @ 68F)	16.4	
Specific Heat (Btu/lb/F @ 68F)	.09	
Electrical Conductivity (% IACS @ 68F)	6.1	
Density (lb/cu.in. @ 68F)	.302	
Pouring Temperature (Light Castings) (F)		
Pouring Temperature (Heavy Castings) (F)		
Patternmakers Shrinkage (in/ft)		
Drossing		
Gassing		
Fluidity		
Shrinkage		
Casting Yield		
Corrosion Resistance: Very good for hydrocarbons, and general corrosion.		
Applications: Low-pressure valve bodies, water pump parts and impellers, electrical hardware, boat hardware, plumbing goods, valve trim, fire equipment, small gears, ornamental fixtures, hydraulic pressure castings, injectors, gas and vapor valves and fittings, hydraulic-pressure castings.		

Always use the design principles outlined on page two of this information sheet or at our website.

Consult your foundry early in the design process.

We routinely pour and inventory this alloy.

