

HIGH STRENGTH YELLOW BRASS C86400

CDA NUMBER	C86400	
Common Name	420; Free Machining Mn Bronze	
COMPOSITION PERCENT	Min	Max
Copper (Cu)	56	62
Tin (Sn)	0.5	1.5
Lead (Pb)	0.5	1.5
Zinc (Zn)	34	42
Iron (Fe)	0.4	2
Antimony (SB)		
Nickel (Ni)		1
Sulphur (S)		
Phosphorous (P)		
Aluminum (Al)	0.5	1.5
Manganese (Mn)	0.1	1.5
Other (Total)		
Cu + Sum of Named Elements, 99.0% min		
In determining Cu min., Cu may be calculated as Cu + Ni.		
Ni value includes Co.		
NEAREST APPLICABLE CASTING STANDARDS		
ASTM (B Series)		
SAE (J Series)	B584	
Federal (QQ-C- Series)		
Military (Mil-C- Series)	390	
TYPICAL PROPERTIES		
Tensile Strength (ksi)	Typ	Min
Yield Strength (.5% extension under load) (ksi)	65	60
Elongation (2 inch gauge length) (%)	24	20
Reduction of Area (%)	20	15
Proportional Limit (ksi)	20	
Modulus of Elasticity (ksi)	14	
Hardness (Brinell) (HB @ 3000kg)	14000	
Machinability (% of free cutting brass)	105	
Fatigue Strength (10 ⁸ cycles) (ksi)	62	
Impact Strength (Charpy) (ft-lb)		
Impact Strength (Izod) (ft-lb)	25	
Shear Strength (ksi)	30	
Compressive Strength (0.001 in. set/in.) (ksi)		
Compressive Strength (0.010 in. set/in.) (ksi)	23	
Compressive Strength (0.100 in. set/in.) (ksi)		
Creep Strength (0.00001% per hour) (ksi)	87	
Melting Range (Liquidus-Solidus)(F)		
Coefficient of Thermal Expansion (per F @ 68-400F)	1580-1616	
Thermal Conductivity (Btu/sq.ft/ft./hr/F @ 68F)	0.000011	
Specific Heat (Btu/lb/F @ 68F)	51	
Electrical Conductivity (% IACS @ 68F)	0.09	
Density (lb/cu.in. @ 68F)	19	
Pouring Temperature (Light Castings) (F)	0.301	
Pouring Temperature (Heavy Castings) (F)	1900-2050	
Patternmakers Shrinkage (in/ft)	1750-1900	
Drossing	1/4	
Gassing	High	
Fluidity	Low	
Shrinkage	Medium	
Corrosion Resistance: Excellent.		
Wear Resistance: Very good		
Applications: Both alloys are used in applications requiring toughness and strength, valve stems, gears, lever bearings and liners. C86400 is free machining because of the lead.		

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.



St. Paul
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Foundry

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