

# HIGH STRENGTH YELLOW BRASS

CDA NUMBER	C86200		C86300	
Common Name	423; 90,000 Tensile		424; 110,000 Tensile	
<b>COMPOSITION PERCENT</b>	<b>Min</b>	<b>Max</b>	<b>Min</b>	<b>Max</b>
Copper (Cu)	60.0	66.0	60.0	66.0
Tin (Sn)		0.1		0.1
Lead (Pb)		0.1		0.1
Zinc (Zn)	22.0	28.0	22.0	28.0
Iron (Fe)		4	2	4
Nickel (Ni)		0.8		0.8
Aluminum (Al)	3	4.9	5	7.5
Manganese (Mn)	2.5	5	2.5	5
<b>NEAREST APPLICABLE CASTING STANDARDS</b>				
ASTM (B Series)	B584		B584	
SAE (J Series)	461, 462 (was 430A)		461, 462 (was 430E)	
Federal (QQ-C- Series)	390		390	
Military (Mil-C- Series)	22229		22229	
<b>TYPICAL PROPERTIES</b>	<b>Typ</b>	<b>Min</b>	<b>Typ</b>	<b>Min</b>
Tensile Strength (ksi)	96	90	119	110
Yield Strength (.5% extension under load) (ksi)	48	45	68	60
Elongation (2 inch gauge length) (%)	21	18	18	12
Reduction of Area (%)	20		20	
Proportional Limit (ksi)	25		45	
Modulus of Elasticity (ksi)	16000		16000	
Hardness (Brinell) (HB @ 3000kg)	180		225	
Machinability (% of free cutting brass)	30		8	
Fatigue Strength (10 <sup>8</sup> cycles) (ksi)			25	
Impact Strength (Charpy) (ft-lb)			14	
Impact Strength (Izod) (ft-lb)	12		15	
Compressive Strength (0.001 in. set/in.) (ksi)	51		71	
Compressive Strength (0.010 in. set/in.) (ksi)			97	
Compressive Strength (0.100 in. set/in.) (ksi)			100	
Creep Strength (0.00001% per hour) (ksi)			56.5 @ 250F	
Melting Range (Liquidus-Solidus)(F)	1650-1730		1625-1693	
Coefficient of Thermal Expansion (per F @ 68-400F)	0.0000120		0.0000119	
Thermal Conductivity (Btu/sq.ft./ft./hr/F @ 68F)	20.5		20.5	
Specific Heat (Btu/lb/F @ 68F)	0.09		0.09	
Electrical Conductivity (% IACS @ 68F)	7.5		8	
Density (lb/cu.in. @ 68F)	0.288		0.283	
Pouring Temperature (Light Castings) (F)	1950-2150		1950-2150	
Pouring Temperature (Heavy Castings) (F)	1800-1950		1800-1950	
Patternmakers Shrinkage (in/ft)	1/4		9/32	
Drossing	High		High	
Gassing	Low		Low	
Fluidity	Medium		Medium	
Shrinkage	High		High	
Casting Yield	Low		Low	

Corrosion Resistance: Very good although C86400 and C86500 are superior. Avoid seawater, ammonia, acids and molten metals.  
 Wear Resistance: Outstanding  
 Applications: C86200: Marine castings, gears, bushings and bearings, gun mounts  
 C86300: Extra heavy duty high strength alloy, gears, cams, slow speed heavy load bearings, screw down nuts, hydraulic cylinder parts.

*\* 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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