

# HIGH STRENGTH YELLOW BRASS C86500

| CDA NUMBER   | C86500              |            |
|--|---------------------|------------|
| Common Name  | 421; 65,000 Tensile |            |
| <b>COMPOSITION PERCENT</b>   | <b>Min</b>          | <b>Max</b> |
| Copper (Cu)  | 55                  | 60         |
| Tin (Sn)   |                     | 1          |
| Lead (Pb)  |                     | 0.4        |
| Zinc (Zn)  | 36                  | 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        |
| Silicon (Si)   |                     |            |
| 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.  |                     |            |
| <b>NEAREST APPLICABLE CASTING STANDARDS</b>  |                     |            |
| ASTM (B Series)  | B584                |            |
| SAE (J Series)   | 461, 462 (was 43)   |            |
| Federal (QQ-C- Series)   | 390                 |            |
| Military (Mil-C- Series)   | 22229               |            |
| <b>TYPICAL PROPERTIES</b>  | <b>Typ</b>          | <b>Min</b> |
| Tensile Strength (ksi)   | 71                  | 65         |
| Yield Strength (.5% extension under load) (ksi)  | 25.8                | 25         |
| Elongation (2 inch gauge length) (%)   | 30                  | 20         |
| Reduction of Area (%)  | 38                  |            |
| Proportional Limit (ksi)   | 14.5                |            |
| Modulus of Elasticity (ksi)  | 15400               |            |
| Hardness (Brinell) (HB @ 3000kg)   | 130                 |            |
| Machinability (% of free cutting brass)  | 26                  |            |
| Fatigue Strength (10 <sup>8</sup> cycles) (ksi)  | 21                  |            |
| Impact Strength (Charpy) (ft-lb)   | 32                  |            |
| Impact Strength (Izod) (ft-lb)   | 30                  |            |
| Shear Strength (ksi)   |                     |            |
| Compressive Strength (0.001 in. set/in.) (ksi)   | 23.8                |            |
| Compressive Strength (0.010 in. set/in.) (ksi)   | 35.2                |            |
| Compressive Strength (0.100 in. set/in.) (ksi)   | 78.9                |            |
| Creep Strength (0.00001% per hour) (ksi)   | 28 @ 250F           |            |
| Melting Range (Liquidus-Solidus)(F)  | 1583-1616           |            |
| Coefficient of Thermal Expansion (per F @ 68-400F)   | 0.000011            |            |
| Thermal Conductivity (Btu/sq.ft./ft./hr/F @ 68F)   | 50                  |            |
| Specific Heat (Btu/lb/F @ 68F)   | 0.09                |            |
| Electrical Conductivity (% IACS @ 68F)   | 22                  |            |
| Density (lb/cu.in. @ 68F)  | 0.301               |            |
| Pouring Temperature (Light Castings) (F)   | 1900-2000           |            |
| Pouring Temperature (Heavy Castings) (F)   | 1750-1900           |            |
| Patternmakers Shrinkage (in/ft)  | 15/64               |            |
| Drossing   | High                |            |
| Gassing  | Low                 |            |
| Fluidity   | Medium              |            |
| <b>Corrosion Resistance:</b> Excellent.  |                     |            |
| <b>Wear Resistance:</b> Very good  |                     |            |
| <b>Applications:</b> Both alloys are used in applications requiring toughness and strength, valve stems, gears, lever bearings and liners. |                     |            |

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  
Brass and Aluminum  
Foundry

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