

## Use Good Design Principles

1. St. Paul Brass and Aluminum Foundry is providing this information on metal characteristics for informational purposes only. Before making a final decision on alloy selection consider the following and all other appropriate design and specification principles. Please note that this is not an exhaustive list.
2. Consult the appropriate specification from an accredited specifying body (ASTM, SAE, Federal or Military) to determine current minimum values of this alloy.
3. Use appropriate design safety factors.
4. Use Failure Modes and Effects Analysis to help identify possible weaknesses in designs and specifications.
5. Use computerized stress analysis tools.
6. Use appropriate certification requirements for your casting suppliers. These may include test bars, chemical certifications, radiography, dye penetrant or other non-destructive testing methods.
7. Test your design to failure in a controlled environment. Then test it to failure in a simulation of its end use.
8. You and you alone are responsible for the suitability of your design and the materials that you select.
9. **Disclaimer.** While every effort is made by St. Paul Brass and Aluminum Foundry (SPBAF) to ensure accuracy, this information is provided for general information purposes only and not for any other purpose. By accessing this information, you agree that it may be revised at any time, it is provided "as is" and without any express or implied warranty, that no warranty or representation is made about its content or suitability for any purpose, and that SPBAF expressly disclaims warranties of merchantability and fitness. You assume all risk and liability for any loss, damage, claim, or expense resulting from your review, use, or possession of this information.

By scrolling down you are acknowledging that you have read and agree to the above principles.

Scroll down for Specification



**C95500 ALUMINUM BRONZE**

CDA NUMBER	C95500	
Common Name	9D Aluminum Bronze	
<b>COMPOSITION PERCENT</b>	<b>Min</b>	<b>Max</b>
Copper (Cu)	78	
Tin (Sn)		
Lead (Pb)		
Zinc (Zn)		
Iron (Fe)	3	5
Antimony (SB)		
Nickel (Ni)	3	5.5
Silicon (Si)		
Aluminum (Al)	10	11.5
Manganese (Mn)		
Other (Total)		
Ni value includes Co.		
Cu + Sum of Named Elements, 99.5% min.		
<b>NEAREST APPLICABLE CASTING STANDARDS</b>		
ASTM (B Series)	B148	
SAE (J Series)	J462	
Federal (QQ-C- Series)	390	
Military (Mil-C- Series)	22229	
<b>TYPICAL PROPERTIES</b>	<b>Typ</b>	<b>Min</b>
Tensile Strength (ksi)	102	890
Yield Strength (.5% extension under load) (ksi)	44	40
Elongation (2 inch gauge length) (%)	12	6
Reduction of Area (%)	10	
Proportional Limit (ksi)	31	
Modulus of Elasticity (ksi)	19000	
Hardness (Brinell) (HB @ 3000kg)	200	
Machinability (% of free cutting brass)	50	
Fatigue Strength (10 <sup>8</sup> cycles) (ksi)	32	
Impact Strength (Charpy) (ft-lb)	10	
Impact Strength (Izod) (ft-lb)	13	
Shear Strength (ksi)	48	
Compressive Strength (0.001 in. set/in.) (ksi)		
Compressive Strength (0.010 in. set/in.) (ksi)		
Compressive Strength (0.100 in. set/in.) (ksi)	120	
Creep Strength (0.00001% per hour) (ksi)	10.5 @ 600F	
Melting Range (Liquidus-Solidus)(F)	1900-1930	
Coefficient of Thermal Expansion (per F @ 68-400F)	0.000090	
Thermal Conductivity (Btu/sq.ft/ft.hr/F @ 68F)	24.2	
Specific Heat (Btu/lb/F @ 68F)	0.1	
Electrical Conductivity (% IACS @ 68F)	8.5	
Density (lb/cu.in. @ 68F)	0.272	
Pouring Temperature (Light Castings) (F)	2250-2350	
Pouring Temperature (Heavy Castings) (F)	2150-2250	
Patternmakers Shrinkage (in/ft)	3/16	
Drossing	High	
Gassing	Medium	
Fluidity	Medium	
Shrinkage	High	
Casting Yield	Low	
<b>Corrosion Resistance:</b> C95500 not for strong oxidizing acids.		
<b>Wear Resistance:</b> C95500 the best of all bronzes.		
<b>Applications:</b> C95500: Valve guides and seats in aircraft engines, corrosion resistant structural parts, bushings, gears, pickling hardware, pump parts, dies and wear parts.		

*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**

