

# C95800

**Material Notes:** Alloy does not respond to heat treating. Casting shrinkage allowance is 1.6%.

**Recommended Casting Methods:** Centrifugal, Continuous, Permanent Mold, Plaster, and Sand.


**Applications:** Propellers hubs, blades, and other parts in contact with salt water.

**Corrosion Resistance:** resists salt water corrosion.

Classified under: Aluminum bronzes. ASTM B148

**Key Words:** Nickel aluminum bronze, ASTM B148

Physical Properties	Metric	English	Comments
Density	7.64 g/cc	0.276 lb/in <sup>3</sup>	
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	159	159	3000 kg load; sand cast
Hardness, Rockwell B	84 - 89	84 - 89	cast and annealed
	88	88	permanent mold cast
Tensile Strength, Ultimate	585 MPa	84800 psi	cast and annealed
	655 MPa	95000 psi	sand cast
	660 MPa	95700 psi	permanent mold cast (typical)
Tensile Strength, Yield	240 MPa	34800 psi	cast and annealed
	262 MPa	38000 psi	sand cast
	360 MPa @Strain 0.500 %	52200 psi @Strain 0.500 %	permanent mold cast (typical)
Elongation at Break	15 %	15 %	in 50 mm (2 in.); cast and annealed
	17 %	17 %	permanent mold cast (typical)
	25 %	25 %	sand cast
Reduction of Area	16 %	16 %	cast and annealed
Modulus of Elasticity	110 GPa	16000 ksi	
Compressive Strength	240 MPa	34800 psi	at 0.1% permanent set; cast and annealed
	330 MPa	47900 psi	at 1% permanent set; cast and annealed
	690 MPa	100000 psi	at 10% permanent set; cast and annealed
Poissons Ratio	0.32	0.32	
Fatigue Strength	230 MPa @# of Cycles 1.00e+8	33400 psi @# of Cycles 1.00e+8	rotating beam
Machinability	50 %	50 %	UNS C36000 (free-cutting brass) = 100%

Shear Modulus	42.0 GPa	6090 ksi	
Charpy Impact 	13.0 J	9.59 ft-lb	Keyhole
	@Temperature -23.0 - 66.0 °C	@Temperature -9.40 - 151 °F	
	22.0 J	16.2 ft-lb	V-notch
	@Temperature -23.0 - 66.0 °C	@Temperature -9.40 - 151 °F	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000243 ohm-cm @Temperature 20.0 °C	0.0000243 ohm-cm @Temperature 68.0 °F	
Magnetic Permeability	1.05	1.05	16 kA/m field strength

Thermal Properties	Metric	English	Comments
CTE, linear	16.2 µm/m-°C @Temperature 20.0 - 300 °C	9.00 µin/in-°F @Temperature 68.0 - 572 °F	
Specific Heat Capacity	0.440 J/g-°C	0.105 BTU/lb-°F	
Thermal Conductivity	36.0 W/m-K @Temperature 20.0 °C	250 BTU-in/hr-ft²-°F @Temperature 68.0 °F	
Melting Point	1045 - 1060 °C	1913 - 1940 °F	
Solidus	1045 °C	1913 °F	
Liquidus	1060 °C	1940 °F	

Processing Properties	Metric	English	Comments
Annealing Temperature	650 - 705 °C	1200 - 1300 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	8.5 - 9.5 %	8.5 - 9.5 %	
Copper, Cu	<= 79 %	<= 79 %	
Iron, Fe	3.5 - 4.5 %	3.5 - 4.5 %	
Lead, Pb	<= 0.030 %	<= 0.030 %	
Manganese, Mn	0.80 - 1.5 %	0.80 - 1.5 %	
Nickel, Ni	4.0 - 5.0 %	4.0 - 5.0 %	
Silicon, Si	<= 0.10 %	<= 0.10 %	