C90300

Material Notes: Casting methods recommended for this alloy: Centrifugal, Continuous, Investment, Plaster, and Sand. Property data reported here is for sand castings.

Applications: Bearings and bushings, pump impellers, position rings, valve components, seal rings, steam fittings, gears .

Classified under: Tin bronzes. ASTM B584; formerly ASTM B143-1B

Alloy does not respond to heat treating. Casting shrinkage allowance is 1.5 - 1.8%

Key Words: Tin Bronze, Modified G Bronze, ASTM B584; ASTM B143-1B

Physical Properties	Metric	English	Comments
Density	8.75 g/cc	0.316 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	70	70	
Tensile Strength, Ultimate	310 MPa	45000 psi	
Tensile Strength, Yield	145 MPa	21000 psi	
Elongation at Break	30 %	30 %	In 50 mm
Modulus of Elasticity	97.0 GPa	14100 ksi	
Machinability	30 %	30 %	UNS C36000 (free-cutting brass) = 100%
Charpy Impact	19.0 J	14.0 ft-lb	V-notch

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000143675 ohm-cm @Temperature 20.0 °C	0.0000143675 ohm-cm @Temperature 68.0 °F	Calculated from 12% IACS
Magnetic Permeability	1.0	1.0	

Thermal Properties	Metric	English	Comments
CTE, linear	18.0 µm/m-°C @Temperature 20.0 - 177 °C	10.0 µin/in-°F @Temperature 68.0 - 351 °F	
Specific Heat Capacity	0.376 J/g-°C	0.0899 BTU/lb-°F	
Thermal Conductivity	74.0 W/m-K @Temperature 20.0 °C	514 BTU-in/hr-ft²-°F @Temperature 68.0 °F	

Melting Point	854 - 1000 °C	1570 - 1830 °F	
Solidus	854 °C	1570 °F	
Liquidus	1000 °C	1830 °F	

Component **Elements** **Properties**	**Metric**	**English**	**Comments**
Aluminum, Al	<= 0.0050 %	<= 0.0050 %	
Antimony, Sb	<= 0.20 %	<= 0.20 %	
Copper, Cu	86 - 89 %	86 - 89 %	
Iron, Fe	<= 0.15 %	<= 0.15 %	
Lead, Pb	<= 0.30 %	<= 0.30 %	
Nickel, Ni	<= 1.0 %	<= 1.0 %	
Phosphorous, P	<= 0.050 %	<= 0.050 %	
Silicon, Si	<= 0.0050 %	<= 0.0050 %	
Sulfur, S	<= 0.050 %	<= 0.050 %	
Tin, Sn	7.5 - 9.0 %	7.5 - 9.0 %	
Zinc, Zn	3.0 - 5.0 %	3.0 - 5.0 %	