C92300

Material Notes: Casting methods recommended for this alloy: Centrifugal, Continuous, and Sand.

Applications: Valves, pipe fittings, and high-pressure steam castings. Superior machinability to C90300.

Classified under: Leaded tin bronzes. ASTM B584; formerly ASTM B143-2B

Data typical for sand-cast test bars. Alloy does not respond to heat treating

Key Words: Leaded tin bronze, ASTM B584; ASTM B143-2B

Physical Properties	Metric	English	Comments
Density	8.80 g/cc	0.318 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	70	70	
Tensile Strength, Ultimate	275 MPa	39900 psi	
Tensile Strength, Yield	138 MPa @Strain 0.500 %	20000 psi @Strain 0.500 %	
Elongation at Break	25 %	25 %	in 50 mm
Modulus of Elasticity	97.0 GPa	14100 ksi	
Compressive Strength	69.0 MPa	10000 psi	at permanent set of 0.1%
	240 MPa	34800 psi	at permanent set of 10%
Machinability	42 %	42 %	UNS C36000 (free-cutting brass) = 100%
Izod Impact	18.3 J	13.5 ft-lb	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000014367 ohm-cm @Temperature 20.0 °C	0.000014367 ohm-cm @Temperature 68.0 °F	Calculated from 12% IACS

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	75.0 W/m-K	521 BTU-in/hr-ft²-°F	

Melting Point	855 - 1000 °C	1570 - 1830 °F	
Solidus	855 °C	1570 °F	
Liquidus	1000 °C	1830 °F	

Processing Properties	**Metric**	**English**	**Comments**
Annealing Temperature	260 °C	500 °F	Stress-Relieving Temperature

Component Elements Properties	**Metric**	**English**	**Comments**
Aluminum, Al	<= 0.0050 %	<= 0.0050 %	
Antimony, Sb	<= 0.25 %	<= 0.25 %	
Copper, Cu	85 - 89 %	85 - 89 %	
Iron, Fe	<= 0.25 %	<= 0.25 %	
Lead, Pb	<= 1.0 %	<= 1.0 %	
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	7.0 - 9.0 %	7.0 - 9.0 %	
Zinc, Zn	2.5 - 5.0 %	2.5 - 5.0 %	