C97300

Material Notes: Casting methods recommended for this alloy: Investment, Permanent Mold, and Sand.

Applications: Hardware fittings, valves and valve trim, statuary, ornamental castings.

Classified under: Nickel silvers. ASTM B584; formerly ASTM B149-10A

Typical data fro sand-cast test bars. Alloy does not respond to heat treating

Key Words: Leaded nickel silver, ASTM B584, ASTM B149-10A

Physical Properties	Metric	English	Comments
Density	8.95 g/cc	0.323 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	55	55	500 kg
Tensile Strength, Ultimate	240 MPa	34800 psi	
Tensile Strength, Yield	115 MPa @Strain 0.500 %	16700 psi @Strain 0.500 %	
Elongation at Break	20 %	20 %	in 50 mm
Modulus of Elasticity	110 GPa	16000 ksi	
Machinability	70 %	70 %	UNS C36000 (free-cutting brass) = 100%

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000302 ohm-cm @Temperature 20.0 °C	0.0000302 ohm-cm @Temperature 68.0 °F	Calculated from 5.7% IACS

Thermal Properties	Metric	English	Comments
CTE, linear	16.2 µm/m-°C @Temperature 20.0 - 260 °C	9.00 µin/in-°F @Temperature 68.0 - 500 °F	
Specific Heat Capacity	0.375 J/g-°C	0.0896 BTU/lb-°F	
Thermal Conductivity	28.5 W/m-K @Temperature 20.0 °C	198 BTU-in/hr-ft²-°F @Temperature 68.0 °F	
Melting Point	1010 - 1040 °C	1850 - 1900 °F	
Solidus	1010 °C	1850 °F	
Liquidus	1040 °C	1900 °F	

Processing Properties	Metric	English	Comments

Annealing Temperature	260 °C	500 °F	Stress-Relieving Temperature; 1 h for each 25 mm of section thickness
Casting Temperature	1090 - 1200 °C	1990 - 2190 °F	Heavy castings
	1200 - 1615 °C	2190 - 2939 °F	Light castings

Component Elements Properties	**Metric**	**English**	**Comments**
Aluminum, Al	<= 0.0050 %	<= 0.0050 %	
Antimony, Sb	<= 0.35 %	<= 0.35 %	
Copper, Cu	53 - 58 %	53 - 58 %	
Iron, Fe	<= 1.5 %	<= 1.5 %	
Lead, Pb	8.0 - 11 %	8.0 - 11 %	
Manganese, Mn	<= 0.50 %	<= 0.50 %	
Nickel, Ni	11 - 14 %	11 - 14 %	
Phosphorous, P	<= 0.050 %	<= 0.050 %	
Silicon, Si	<= 0.15 %	<= 0.15 %	
Sulfur, S	<= 0.080 %	<= 0.080 %	
Tin, Sn	1.5 - 3.0 %	1.5 - 3.0 %	
Zinc, Zn	17 - 25 %	17 - 25 %	