C96400

Material Notes:

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

Applications: Valves, pump bodies, flanges, elbows used for sea-water corrosion resistance.

Classified under: Copper-nickels

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

Physical Properties	Metric	English	Comments
Density	8.94 g/cc	0.323 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	140	140	3000 kg
Tensile Strength, Ultimate	470 MPa	68200 psi	
Tensile Strength, Yield	255 MPa @Strain 0.500 %	37000 psi @Strain 0.500 %	
Elongation at Break	28 %	28 %	in 50 mm
Modulus of Elasticity	145 GPa	21000 ksi	
Fatigue Strength	125 MPa @# of Cycles 1.00e+8	18100 psi @# of Cycles 1.00e+8	Reverse Bending
Machinability	20 %	20 %	UNS C36000 (free-cutting brass) = 100%
Charpy Impact	106 J	78.2 ft-lb	V-notch

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00003448 ohm-cm @Temperature 20.0 °C	0.00003448 ohm-cm @Temperature 68.0 °F	as-cast tempers

Thermal Properties	Metric	English	Comments
CTE, linear	16.0 µm/m-°C @Temperature 20.0 - 300 °C	8.89 µin/in-°F @Temperature 68.0 - 572 °F	
Specific Heat Capacity	0.375 J/g-°C	0.0896 BTU/lb-°F	
Thermal Conductivity	29.0 W/m-K @Temperature 20.0 °C	201 BTU-in/hr-ft²-°F @Temperature 68.0 °F	
Melting Point	1170 - 1240 °C	2140 - 2260 °F	
Solidus	1170 °C	2140 °F	
Liquidus	1240 °C	2260 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 0.15 %	
Copper, Cu	65 - 69 %	65 - 69 %	
Iron, Fe	0.25 - 1.5 %	0.25 - 1.5 %	
Lead, Pb	<= 0.030 %	<= 0.030 %	
Manganese, Mn	<= 1.5 %	<= 1.5 %	
Nickel, Ni	28 - 32 %	28 - 32 %	
Niobium, Nb (Columbium, Cb)	0.50 - 1.5 %	0.50 - 1.5 %	
Silicon, Si	<= 0.50 %	<= 0.50 %	