

# COPPER NICKEL C96400

CDA NUMBER	C96400	
Common Name	90:30 Copper Nickel	
<b>COMPOSITION PERCENT</b>	<b>Min</b>	<b>Max</b>
Copper (Cu)	Rem.	
Tin (Sn)		
Lead (Pb)		0.01
Zinc (Zn)		
Iron (Fe)	0.25	1.5
Antimony (SB)		
Nickel (Ni)	28	32
Sulphur (S)		0.02
Phosphorous (P)		0.02
Carbon (C)		0.15
Manganese (Mn)		1.5
Silicon (Si)		0.5
Niobium (Nb)	.5	1.5
Cu + Sum of Named Elements, 99.5% min.		
Ni value includes Co.		
<b>NEAREST APPLICABLE CASTING STANDARDS</b>		
ASTM (B Series)	B369, B30	
SAE (J Series)		
Federal (QQ-C- Series)	390	
Military (Mil-C- Series)	20159	
<b>TYPICAL PROPERTIES</b>	<b>Typ</b>	<b>Min</b>
Tensile Strength (ksi)	68	60
Yield Strength (.5% extension under load) (ksi)	37	32
Elongation (2 inch gauge length) (%)	28	20
Reduction of Area (%)		
Proportional Limit (ksi)		
Modulus of Elasticity (ksi)	21000	
Hardness (Brinell) (HB @ 3000kg)	140	
Machinability (% of free cutting brass)	20	
Fatigue Strength (10 <sup>8</sup> cycles) (ksi)	18	
Impact Strength (Charpy) (ft-lb)	78	
Impact Strength (Izod) (ft-lb)		
Shear Strength (ksi)		
Compressive Strength (0.001 in. set/in.) (ksi)		
Compressive Strength (0.010 in. set/in.) (ksi)		
Compressive Strength (0.100 in. set/in.) (ksi)		
Creep Strength (0.00001% per hour) (ksi)		
Melting Range (Liquidus-Solidus)(F)	2140-2260	
Coefficient of Thermal Expansion (per F @ 68-400F)	0.0000090	
Thermal Conductivity (Btu/sq.ft/ft.hr/F @ 68F)	17	
Specific Heat (Btu/lb/F @ 68F)	0.09	
Electrical Conductivity (% IACS @ 68F)	5	
Density (lb/cu.in. @ 68F)	0.323	
Pouring Temperature (Light Castings) (F)	2500-2650	
Pouring Temperature (Heavy Castings) (F)	2350-2500	
Patternmakers Shrinkage (in/ft)	7/32	
Drossing	Medium	
Gassing	High	
Fluidity	High	
Shrinkage	High	
Casting Yield	Low	
<b>Corrosion Resistance:</b> Excellent.		
<b>Wear Resistance:</b> Very good.		
<b>Applications:</b> Valves, pump bodies, flanges, elbows. Used for seawater corrosion.		

*Always use the design principles outlined on page two of this information sheet or at our website.*

*Consult your foundry early in the design process.*

*We routinely pour and inventory this alloy.*



St. Paul  
Brass and Aluminum  
Foundry

954 Minnehaha Ave West, St. Paul, MN 55104 (651) 488-5567 Fax: (651) 488-0908

[www.spba.net](http://www.spba.net) [sales@spba.net](mailto:sales@spba.net)