

**Chemical Composition**

(%max., unless shown as range or min.)

	Cu	Al	Ni(1)	Si
Min./Max.	88.0 min	6.0-8.0	.25	1.8-3.2
Nominal	90.3	7.0	-	2.5

(1) Ni value includes Co.

Note: Cu + Sum of Named Elements, 99.0% min.

**Applicable Specifications**

Product	Specification
Ingot	ASTM B30
Sand	ASTM B763, B148

**Common Fabrication Processes**

Casting

**Fabrication Properties**

Joining Technique	Suitability
Soldering	Good
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Fair
Machinability Rating	60

**Mechanical Properties (measured at room temperature, 68 F (20 C))**

Temper	Section Size	Cold Work	Typ/Min	Temp	Tensile Strength	Yield Strength (0.5% ext. under load)	Yield Strength (0.2% offset)	Yield Strength (0.05% offset)	El	Rockwell Hardness				Vickers Hard.	Brinell Hard.	Shear Strength	Fatigue Strength*	Izod Impact Strength	
										B	C	F	30T						
	in.	%		F	ksi	ksi	ksi	ksi	%	B	C	F	30T	500	500	3000	ksi	ksi	ft-lb
	mm.			C	MPa	MPa	MPa	MPa									MPa	MPa	J
<b>As Sand Cast</b>																			
M01	0.0	0	TYP	68	75	34	-	-	18	-	-	-	-	-	140	-	-	0.0	
	0.0			20	517	234	-	-	18	-	-	-	-	-	140	-	-	0.0	
M01	0.0	0	S MIN	68	60	28	-	-	10	-	-	-	-	-	-	-	-	0.0	
	0.0			20	415	195	-	-	10	-	-	-	-	-	-	-	-	0.0	

\*Fatigue Strength: 100 x 10<sup>6</sup> cycles, unless indicated as [N]X 10<sup>6</sup>.

**Physical Properties**

◇	US Customary	Metric
Melting Point - Liquidus	1840 F	1004 C
Melting Point - Solidus	1800 F	982 C
Density	0.278 lb/in <sup>3</sup> at 68 F	7.7 gm/cm <sup>3</sup> @ 20 C
Specific Gravity	7.7	7.7
Electrical Resistivity	122.8 ohms-cmil/ft @ 68 F	20.41 microhm-cm @ 20 C
Electrical Conductivity	8 %IACS @ 68 F	0.049 MegaSiemens/cm @ 20 C
Thermal Conductivity	22.3 Btu · ft/(hr · ft <sup>2</sup> · oF) at 68F	38.6 W/m · oK at 20 C
Coefficient of Thermal Expansion	9.2 · 10 <sup>-6</sup> per oF (68-572 F)	16.6 · 10 <sup>-6</sup> per oC (20-300 C)
Specific Heat Capacity	0.1 Btu/lb/oF at 68 F	419.0 J/kg · oK at 293 K
Modulus of Elasticity in Tension	15000 ksi	103400 MPa