

RIVERSIDE BRASS

& ALUMINUM FOUNDRY LIMITED

C90700 (Tin Bronze, 65)

Last Updated: Jan 27, 2006

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

	Cu(1)	Al	Sb	Fe	Pb	Ni(2)	P(3)	Si	S	Sn	Zn
Min./Max.	88.0-90.0	.005	.20	.15	.50	.50	.30	.005	.05	10.0-12.0	.50
Nominal	89.0	-	-	-	-	-	-	-	-	11.0	-

(1) In determining Cu min., Cu may be calculated as Cu + Ni.

(2) Ni value includes Co.

(3) For continuous castings, P shall be 1.5%, max.

Note: Cu + Sum of Named Elements, 99.4% min.

Applicable Specifications

Product	Specification
Centrifugal	ASTM B427 SAE J462, J461
Continuous	ASTM B505 SAE J461, J462
Ingot	ASTM B30
Sand	ASTM B427 SAE J461, J462

Common Fabrication Processes

Casting

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Good
Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Fair
Machinability Rating	20

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)	EI	Rockwell Hardness			Vickens Hard.	Brinell Hard.	Shear Strength	Fatigue Strength*	Izod Impact Strength	
										%	B	C						F/30T
	in.	%		F	ksi	ksi	ksi	ksi							ksi	ksi	ft-lb	
	mm.			C	MPa	MPa	MPa	MPa							MPa	MPa	J	
As Sand Cast																		
M01	0.0	0	TYP	68	44	22	-	-	20	-	-	-	-	80	-	-	25	0.0
	0.0			20	303	152	-	-	20	-	-	-	-	80	-	-	172	0.0
M01	0.0	0	SMIN	68	35	17	-	-	10	-	-	-	-	65	-	-	-	0.0
	0.0			20	241	117	-	-	10	-	-	-	-	65	-	-	-	0.0
As Centrifugal Cast																		
M02	0.0	0	TYP	68	55	30	-	-	16	-	-	-	-	102	-	-	-	0.0
	0.0			20	379	207	-	-	16	-	-	-	-	102	-	-	-	0.0
As Continuous Cast																		
M07	0.0	0	SMIN	68	40	25	-	-	10	-	-	-	-	-	-	-	-	0.0
	0.0			20	276	172	-	-	10	-	-	-	-	-	-	-	-	0.0
As Permanent Mold Cast																		
M05	0.0	0	TYP	68	55	30	-	-	16	-	-	-	-	102	-	-	-	0.0
	0.0			20	379	207	-	-	16	-	-	-	-	102	-	-	-	0.0
As Centrifugal Cast																		

M02	0.0	0	SMIN	68	50	28	-	-	12	-	-	-	-	95	-	-	-	0.0
	0.0			20	345	193	-	-	12	-	-	-	-	95	-	-	-	0.0

*Fatigue Strength: 100 x 10⁶ cycles,
unless indicated as [N]X 10⁶.

Physical Properties

<>	US Customary	Metric
Melting Point - Liquidus	1830 F	999 C
Melting Point - Solidus	1528 F	831 C
Density	0.317 lb/in ³ at 68 F	8.77 gm/cm ³ @ 20 C
Specific Gravity	8.77	8.77
Electrical Resistivity	107.4 ohms-cmil/ft @ 68 F	17.86 microhm-cm @ 20 C
Electrical Conductivity	10 %IACS @ 68 F	0.056 MegaSiemens/cm @ 20 C
Thermal Conductivity	40.8 Btu · ft/(hr · ft ² ·oF)at 68F	70.6 W/m · oK at 20 C
Coefficient of Thermal Expansion	10.2 · 10 ⁻⁶ per oF (68-392 F)	18.4 · 10 ⁻⁶ per oC (20-200 C)
Specific Heat Capacity	0.09 Btu/lb/oF at 68 F	377.1 J/kg · oK at 293 K
Modulus of Elasticity in Tension	15000 ksi	103400 MPa
Magnetic Permeability	1.0	1.0

Tempers Most Commonly Used No information available.

Typical Uses

Industrial

Bearings, Worm Wheels, Gears, Bearings for Heavy Loads and Relatively Low Speeds, Restaurant Equipment, Gear Boxes, Speed Reducers, Valve Bodies, Worm Gears

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