

C86300 (Manganese Bronze)

Chemical Composition

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

	Cu ⁽¹⁾	Al	Fe	Pb	Mn	Ni ⁽²⁾	Sn	Zn
Min./Max.	60.0-66.0	5.0-7.5	2.0-4.0	2.0	2.5-5.0	1.0	.20	22.0-28.0
Nominal	63.0	6.2	3.0	-	3.7	-	-	25.0

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

(2) Ni value includes Co.

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

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

Temper	Section Size	Cold Work	Typ/Temp	Tensile Strength	Yield Strength			Rockwell Hardness	Vickers Hard.	Brinell Hard.	Shear Strength	Fatigue Strength*	Izod Impact Strength				
					(0.5% ext. under load)	(0.2% offset)	(0.05% offset)										
	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
As Sand Cast																	
M01	0.0	0	TYP	68	119	62	-	-	18-	-	-	-	-	225	-	25	15.0
	0.0			20	821	427	-	-	18-	-	-	-	-	225	-	172	20.0
As Centrifugal Cast																	
M02	0.0	0	SMIN	68	110	60	-	-	12-	-	-	-	-	-	-	-	0.0
	0.0			20	758	414	-	-	12-	-	-	-	-	-	-	-	0.0
As Continuous Cast																	
M07	0.0	0	SMIN	68	110	62	-	-	14-	-	-	-	-	-	-	-	0.0
	0.0			20	758	427	-	-	14-	-	-	-	-	-	-	-	0.0
As Sand Cast																	
M01	0.0	0	SMIN	68	110	60	-	-	12-	-	-	-	-	223	-	-	0.0
	0.0			20	760	415	-	-	12-	-	-	-	-	223	-	-	0.0

*Fatigue Strength: 100×10^6 cycles, unless indicated as $[N] \times 10^6$.

Physical Properties

<=" b=">	US Customary
Melting Point - Liquidus	1693 F
Melting Point - Solidus	1625 F
Density	0.283 lb/in ³ at 68 F
Specific Gravity	7.830
Electrical Resistivity	130.80 ohms-cmil/ft @ 68 F
Electrical Conductivity	8 %IACS @ 68 F
Thermal Conductivity	20.50 Btu · ft/(hr · ft ² · °F) at 68F
Coefficient of Thermal Expansion	$12 \cdot 10^{-6}$ per °F (68-572 F)
Specific Heat Capacity	0.090 Btu/lb/°F at 68 F
Modulus of Elasticity in Tension	14200 ksi
Magnetic Permeability*	1.090

*Field Strength 16 kA/m