

**CDA675 (Manganese Bronze A)****Chemical Composition**

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

	Cu ⁽¹⁾	Al	Fe	Pb	Mn	Sn	Zn
Min. /Max.	57.0-60.0	.25	.8-2.0	.20	.05-.50	.50-1.5	Rem.
Nominal	58.5	-	1.4	-	.10	1.0	39.0

(1) Cu value includes Ag.

Note: Cu + Sum of Named Elements, 99.5% min.

Applicable Specifications

Product	Specification
Bar	ASTM B138 SAE J463, J461
Bar, Forging	ASTM B124
Bolts	ASTM F468
Forgings, Die	ASTM B283 SAE J463, J461
Nuts	ASTM F467
Rod	ASTM B138 SAE J463, J461
Rod, Forging	ASTM B124
Screws	ASTM F468
Shapes	ASTM B138 SAE J463, J461
Shapes, Forging	ASTM B124
Studs	ASTM F468

Common Fabrication Processes

Hot Forging and Pressing, Hot heading and upsetting

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Not Recommended
Spot Weld	Good
Seam Weld	Fair
Butt Weld	Good
Capacity for Being Cold Worked	Poor
Capacity for Being Hot Formed	Excellent
Forgeability Rating	80
Machinability Rating	30



Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Annealing Minimum	800	427
Annealing Maximum	1100	594
Annealing Time		
Hot Works Minimum	1150	622
Hot Works Maximum	1450	788

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

Temper	Section Size	Cold Work	Typ/Temp	Tensile Strength	Yield	Yield	Yield	Rockwell Hardness	Vickers Hard.	Brinell Hard.	Shear Strength	Fatigue Strength*	Izod Impact Strength	
					Strength (0.5% ext. under load)	Strength (0.2% offset)	Strength (0.05% offset)							
	in. mm.	%	F C	ksi MPa	ksi MPa	ksi MPa	ksi MPa	% B	CF30T500	5003000ksi	MPa	ksi MPa	ft-lb J	
Rod														
H01	2	10	TYP68	72	42	-	-	2777	- - -	-	-	44	-	0.0
	51		20	496	290	-	-	2777	- - -	-	-	303	-	0.0
O60	1	0	TYP68	65	30	-	-	3365	- - -	-	-	42	-	0.0
	25.4		20	448	207	-	-	3365	- - -	-	-	290	-	0.0
H02	1	20	TYP68	84	60	-	-	1990	- - -	-	-	48	-	0.0
	25.4		20	579	414	-	-	1990	- - -	-	-	331	-	0.0
H01	1	10	TYP68	77	45	-	-	2383	- - -	-	-	47	-	0.0
	25.4		20	531	310	-	-	2383	- - -	-	-	324	-	0.0

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

Physical Properties

<="" b="">	US Customary	Metric
Melting Point - Liquidus	1630 F	888 C
Melting Point - Solidus	1590 F	866 C
Density	0.302 lb/in ³ at 68 F	8.36 gm/cm ³ @ 20 C
Specific Gravity	8.360	8.36
Electrical Resistivity	43.20 ohms-cmil/ft @ 68 F	7.18 microhm-cm @ 20 C
Electrical Conductivity	24 %IACS @ 68 F	0.14 MegaSiemens/cm @ 20 C
Thermal Conductivity	61 Btu · ft/(hr · ft ² · °F) at 68 F	105.6 W/m · °K at 20 C
Coefficient of Thermal Expansion	11.80 · 10 ⁻⁶ per °F (68-572 F)	21.2 · 10 ⁻⁶ per °C (20-300 C)
Specific Heat Capacity	0.090 Btu/lb · °F at 68 F	377.1 J/kg · °K at 293 K
Modulus of Elasticity in Tension	15000 ksi	103400 MPa
Modulus of Rigidity	5600 ksi	38610 MPa

Tempers Most Commonly Used

Other	
ROD	H01, H02, M30, O60
SHAPES	M30

Typical Uses

Automotive

Clutch Disks, Shafting, Pump Rods

Fasteners

Bolts

Industrial

Valve Bodies, Balls, Valve Stems, Bushings, Aircraft Parts



**Marine
Hardware**

Casting Characteristics

No casting characteristics available for this alloy.