

**CDA642 (Aluminium Bronze)****US EPA Registered Antimicrobial****Chemical Composition**

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

	Cu ⁽¹⁾	Al	As	Fe	Pb	Mn	Ni ⁽²⁾	Si	Sn	Zn
Min. /Max.	Rem.	6.3-7.6	.09	.30	.05	.10	.25	1.5-2.2	.20	.50
Nominal	91.2	7.0	-	-	-	-	-	1.8	-	-

(1) Cu value includes Ag.

(2) Ni value includes Co.

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

Applicable Specifications

Product	Specification
Bar	AMS 4631 ASME SB150 ASTM B150
Bar, Forging	ASTM B124
Bolts	ASTM F468
Forgings, Die	AMS 4631 ASME SB283 ASTM B283
Nuts	ASTM F467
Rod	AMS 4631 ASME SB150 ASTM B150 SAE J463, J461
Rod, Forging	ASTM B124
Screws	ASTM F468
Shapes	ASTM B150
Shapes, Forging	ASTM B124
Studs	ASTM F468

Common Fabrication Processes

Forging, Hot Forming, Machining

Fabrication Properties

Joining Technique	Suitability
Soldering	Not Recommended
Brazing	Fair
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Fair
Spot Weld	Fair
Seam Weld	Fair
Butt Weld	Fair
Capacity for Being Cold Worked	Poor
Capacity for Being Hot Formed	Excellent
Forgeability Rating	80
Machinability Rating	60

Thermal Properties



Treatment	Temp./Time - US	Temp./Time - SI
Annealing Minimum	1100	594
Annealing Maximum	1300	705
Annealing Time		
Hot Works Minimum	1300	705
Hot Works Maximum	1600	872

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

Temper	Section Size	Cold Work	Temp	Tensile Strength	Yield Strength (0.5% ext. under load)	Yield Strength (0.2% offset)	Yield Strength (0.05% offset)	Rockwell Hardness	Vickers Hard.	Brinell Hard.	Shear Strength	Fatigue Strength*	Izod Impact Strength
	in. mm.	%	F C	ksi MPa	ksi MPa	ksi MPa	ksi MPa	% B CF30T500			ksi MPa	ksi MPa	ft-lb J
Rod													
M30	0.75	0	TYP68	75	35	-	-	3277-	-	-	-	-	0.0
	19		20	517	241	-	-	3277-	-	-	-	-	0.0
H04	1.5	10	TYP68	93	60	-	-	2690-	-	-	-	-	0.0
	38		20	641	414	-	-	2690-	-	-	-	-	0.0
H04	0.75	15	TYP68	102	68	-	-	2294-	-	-	59	50	0.0
	19		20	703	469	-	-	2294-	-	-	407	345	0.0
O50	0.75	0	TYP68	90	55	-	-	2889-	-	-	-	-	0.0
	19		20	621	379	-	-	2889-	-	-	-	-	0.0
O50	0.5	0	TYP68	92	58	-	-	2298-	-	-	-	-	0.0
	12.7		20	634	400	-	-	2298-	-	-	-	-	0.0
Forgings													
M10	2	0	TYP68	79	38	-	-	3078-	-	-	-	-	0.0
	51		20	545	262	-	-	3078-	-	-	-	-	0.0
Bar													
M30	0.75	0	TYP68	75	35	-	-	3277-	-	-	-	-	0.0
	19		20	517	241	-	-	3277-	-	-	-	-	0.0

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

Physical Properties

	US Customary	Metric
Melting Point - Liquidus	1840 F	1004 C
Melting Point - Solidus	1800 F	982 C
Density	0.278 lb/in ³ at 68 F	7.7 gm/cm ³ @ 20 C
Specific Gravity	7.690	7.69
Electrical Resistivity	113 ohms-cmil/ft @ 68 F	18.79 microhm-cm @ 20 C
Electrical Conductivity	8 %IACS @ 68 F	0.047 MegaSiemens/cm @ 20 C
Thermal Conductivity	26 Btu · ft/(hr · ft ² · °F) at 68 F	45.0 W/m · °K at 20 C
Coefficient of Thermal Expansion	10 · 10 ⁻⁶ per °F (68-572 F)	18.0 · 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	16000 ksi	110000 MPa
Modulus of Rigidity	6000 ksi	41370 MPa

Tempers Most Commonly Used

Flat Products
BAR, DRAWN H04, H58, M30, O50

Other
ROD H04, M30, O50
SHAPES M30



Typical Uses

Automotive

Valve Guides, Automobile Engine

Electrical

Pole Line Hardware

Fasteners

Nuts, Bolts

Industrial

Valve Bodies, Valve Stems, Gears, Cams, Valve Components

Marine

Hardware

Casting Characteristics

No casting characteristics available for this alloy.