

**CDA360 (Free-Cutting Brass)****Chemical Composition**

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

	Cu	Fe	Pb	Zn
Min. /Max.	60.0-63.0	.35	2.5-3.0	Rem.
Nominal	61.5	-	2.7	35.4

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

Applicable Specifications

Product	Specification
Bar	AMS 4610 ASTM B16 SAE J461, J463
Rod	AMS 4610 ASTM B16 SAE J463, J461
Shapes	ASTM B16 SAE J461, J463
Valves	MILITARY MIL-V-18436
Wire	ASTM B16

Common Fabrication Processes

Machining, Roll Threading and Knurling

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Not Recommended
Spot Weld	Not Recommended
Seam Weld	Not Recommended
Butt Weld	Fair
Capacity for Being Cold Worked	Fair
Capacity for Being Hot Formed	Fair
Machinability Rating	100

Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Annealing Minimum	800	427
Annealing Maximum	1100	594
Annealing Time		
Hot Works Minimum	1300	705
Hot Works Maximum	1450	788

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

Temper	Section Size	Cold Work	Temp Min	Temp	Tensile Strength	Yield	Yield	Yield	El	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. mm.	%		F C	ksi MPa	ksi MPa	ksi MPa	ksi MPa	% B CF	30T500	5003000ksi	ksi MPa	ksi MPa		ft-lb J
Rod															
H04	0.375	0	TYP	68	-	-	-	-	-	78-	-	-	34	-	0.0
	12.7			20	-	-	-	-	-	78-	-	-	234	-	0.0
H02	1.5	0	TYP	68	-	-	-	-	-	65-	-	-	-	-	0.0
	38.1			20	-	-	-	-	-	65-	-	-	-	-	0.0
H04	0.625	0	SMIN	68	65	30	-	-	6	-	-	-	-	-	0.0
	15.9			20	450	205	-	-	6	-	-	-	-	-	0.0
H02	3.0	0	SMIN	68	45	15	-	-	20-	-	-	-	-	-	0.0
	76.2			20	310	105	-	-	20-	-	-	-	-	-	0.0
O60	1.5	0	SMIN	68	44	18	-	-	20-	-	-	-	-	-	0.0
	38.1			20	305	18	-	-	20-	-	-	-	-	-	0.0
H02	0.75	0	MIN	68	-	-	-	-	-	70-	-	-	-	-	0.0
	19.1			20	-	-	-	-	-	70-	-	-	-	-	0.0
H02	<0.50	0	TYP	68	-	-	-	-	-	65-	-	-	32	20	0.0
	12.7			20	-	-	-	-	-	65-	-	-	221	138	0.0
Bar															
H02	<0.50	0	SMIN	68	50	25	-	-	10-	-	-	-	-	-	0.0
	<12.7			20	345	170	-	-	10-	-	-	-	-	-	0.0
O60	1.5	0	SMIN	68	40	15	-	-	25-	-	-	-	-	-	0.0
	38.1			20	275	105	-	-	25-	-	-	-	-	-	0.0
Shapes															
H01	0.5	11	TYP	68	56	45	-	-	2062-	-	-	-	33	-	0.0
	12.7			20	386	310	-	-	2062-	-	-	-	228	-	0.0
M30	0.5	0	TYP	68	49	18	-	-	50-	-	68-	-	30	-	0.0
	12.7			20	338	124	-	-	50-	-	68-	-	207	-	0.0
Rod															
H02	1.5	0	SMIN	68	50	20	-	-	15-	-	-	-	-	-	0.0
	38.1			20	345	140	-	-	15-	-	-	-	-	-	0.0
O60	<1	0	SMIN	68	48	20	-	-	15-	-	-	-	-	-	0.0
	<25.4			20	330	124	-	-	15-	-	-	-	-	-	0.0
Bar															
H02	1.5	0	TYP	68	-	-	-	-	-	60-	-	-	-	-	0.0
	38.1			20	-	-	-	-	-	60-	-	-	-	-	0.0
H02	<0.50	0	TYP	68	-	-	-	-	-	65-	-	-	-	-	0.0
	<12.7			20	-	-	-	-	-	65-	-	-	-	-	0.0
Rod															
H02	4.5	0	SMIN	68	40	15	-	-	2025-	-	-	-	-	-	0.0
	114.3			20	275	105	-	-	2025-	-	-	-	-	-	0.0
H04	0.25	0	TYP	68	-	-	-	-	-	80-	-	-	38	-	0.0
	6.35			20	-	-	-	-	-	80-	-	-	262	-	0.0
Flat Products															
H02	0.25	11	TYP	68	56	45	-	-	2062-	-	-	-	33	-	0.0
	4.76			20	386	310	-	-	2062-	-	-	-	228	-	0.0
Rod															
H04	0.375	0	SMIN	68	70	35	-	-	4	-	-	-	-	-	0.0
	12.7			20	480	240	-	-	4	-	-	-	-	-	0.0
H02	0.75	0	SMIN	68	55	25	-	-	10-	-	-	-	34	-	0.0
	19.1			20	380	170	-	-	10-	-	-	-	234	-	0.0
H02	3.0	0	TYP	68	-	-	-	-	-	55-	-	-	-	-	0.0
	76.2			20	-	-	-	-	-	55-	-	-	-	-	0.0
Bar															
O60	<1	0	SMIN	68	44	18	-	-	20-	-	-	-	-	-	0.0
	<25.4			20	305	125	-	-	20-	-	-	-	-	-	0.0
Rod															
O60	<1	0	TYP	68	-	-	-	-	-	28-	-	-	30	-	0.0
	<25.4			20	-	-	-	-	-	28-	-	-	207	-	0.0
H04	0.25	0	SMIN	68	80	45	-	-	-	-	-	-	-	-	0.0
	6.35			20	550	310	-	-	-	-	-	-	-	-	0.0
O60	2.5	0	SMIN	68	40	15	-	-	25-	-	-	-	-	-	0.0
	63.5			20	40	15	-	-	25-	-	-	-	-	-	0.0
H02	<0.50	0	TYP	68	57	25	-	-	7	-	-	-	-	-	0.0
	12.7			20	395	170	-	-	7	-	-	-	-	-	0.0
Bar															
H02	3	0	SMIN	68	40	15	-	-	20-	-	-	-	-	-	0.0
	76.2			20	275	105	-	-	20-	-	-	-	-	-	0.0
H02	1.5	0	SMIN	68	45	17	-	-	15-	-	-	-	-	-	0.0
	38.1			20	310	115	-	-	15-	-	-	-	-	-	0.0
O60	1.5	0	TYP	68	-	-	-	-	-	22-	-	-	-	-	0.0
	38.1			20	-	-	-	-	-	22-	-	-	-	-	0.0

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

**Physical Properties**

	US Customary	Metric
Melting Point - Liquidus	1650 F	899 C
Melting Point - Solidus	1630 F	888 C
Density	0.307 lb/in ³ at 68 F	8.5 gm/cm ³ @ 20 C
Specific Gravity	8.500	8.5
Electrical Resistivity	39.90 ohms-cmil/ft @ 68 F	6.63 microhm-cm @ 20 C
Electrical Conductivity	26 %IACS @ 68 F	0.152 MegaSiemens/cm @ 20 C
Thermal Conductivity	67 Btu · ft/(hr · ft ² · °F) at 68 F	116.0 W/m · °K at 20 C
Coefficient of Thermal Expansion	11.40 · 10 ⁻⁶ per °F (68-572 F)	20.5 · 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	14000 ksi	96500 MPa
Modulus of Rigidity	5300 ksi	36500 MPa

Temper Most Commonly Used**Flat Products**

BAR, DRAWN | H01, H02

Other

ROD | H02, O60

SHAPES | H01, H02

Typical Uses**Architecture**

Terrazzo Strip

Automotive

Sensor Bodies, Threaded Inserts for Plastic, Fluid Connectors, Thermostat Parts

Builders Hardware

Lock Bodies, Hardware, Fittings

Consumer

Hot Combs (to Straighten Hair)

Fasteners

Bolts, Nuts, Screws

Industrial

Faucet Components, Pneumatic Fittings, Fluid Connectors, Automatic Screw Machine Parts, Unions, Adapters, Screw Machine Products, Gauges, Valve Seats, Valve Trim, Valve Stems, Nozzles, Pinions, Gears

Plumbing

Plumbers' Brass Goods, Faucet Stems, Faucet Seats, Plumbing Fittings

Casting Characteristics

No casting characteristics available for this alloy.