

## ALLOY 360

### C36000 (CDA 360) - FREE-CUTTING BRASS / FREE-MACHINING BRASS

C36000 Free-Machining Brass is ideally suited for high speed machining operations with its superior machinability, thread rolling and knurling characteristics. Its machinability rating of 100 is standard against which all other copper alloys are rated. It is easily soldered or brazed and has good resistance to corrosion. Typical applications included gears, pinions, fittings, adapters, valves, valve stems and high speed screw machine products. Conforms to specification ASTM B16

As the distribution arm of Chase Brass & Copper Co. in addition to A.J. Oster's extensive inventory, we can benefit from the short leadtime on inventory replenishment.

Visit [ChaseBrass.com](http://ChaseBrass.com) for more specific material related information including [Green Dot Brass](#) an [Eco Brass® Alloy](#)

Calculations are theoretically based on the density of C36000 = 0.307 lb/cu in @ 68 F.

### C36000 - FREE-CUTTING BRASS - STANDARDS & PROPERTIES

SIZE CHARTS: ROUNDS, RECTANGLES, SQUARES, HEX

#### Chemical Composition

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

	Cu	Fe	Pb	Zn
Min./Max.	60.0-63.0	.35	2.5-3.7	Rem.
Nominal	61.5	-	3.1	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 J461, J463
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

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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			Vickers Hard.		Brinell Hard.		Shear Strength	Fatigue Strength*	Izod Impact Strength
										B	C	F 30T	500	500	3000	ksi			
	in.	%		F	ksi	ksi	ksi	ksi	%								ksi	ksi	ft-lb
	mm.			C	MPa	MPa	MPa	MPa									MPa	MPa	J
<b>Rod</b>																			
H02	1.5	0	TYP	68	-	-	-	-	-	65	-	-	-	-	-	-	-	-	0.0
	38.1			20	-	-	-	-	-	65	-	-	-	-	-	-	-	-	0.0
H02	1.5	0	SMIN	68	50	20	-	-	15	-	-	-	-	-	-	-	-	-	0.0
	38.1			20	345	140	-	-	15	-	-	-	-	-	-	-	-	-	0.0
H02	3.0	0	TYP	68	-	-	-	-	-	55	-	-	-	-	-	-	-	-	0.0
	76.2			20	-	-	-	-	-	55	-	-	-	-	-	-	-	-	0.0
H02	3.0	0	SMIN	68	45	15	-	-	20	-	-	-	-	-	-	-	-	-	0.0
	76.2			20	310	105	-	-	20	-	-	-	-	-	-	-	-	-	0.0
H02	4.5	0	SMIN	68	40	15	-	-	20	25	-	-	-	-	-	-	-	-	0.0
	114.3			20	275	105	-	-	20	25	-	-	-	-	-	-	-	-	0.0
H02	0.75	0	MIN	68	-	-	-	-	-	70	-	-	-	-	-	-	-	-	0.0
	19.1			20	-	-	-	-	-	70	-	-	-	-	-	-	-	-	0.0
H02	0.75	0	SMIN	68	55	25	-	-	10	-	-	-	-	-	-	-	34	-	0.0
	19.1			20	380	170	-	-	10	-	-	-	-	-	-	-	234	-	0.0
H02	<0.50	0	TYP	68	-	-	-	-	-	65	-	-	-	-	-	-	32	20	0.0
	12.7			20	-	-	-	-	-	65	-	-	-	-	-	-	221	138	0.0
H02	<0.50	0	TYP	68	57	25	-	-	7	-	-	-	-	-	-	-	-	-	0.0
	12.7			20	395	170	-	-	7	-	-	-	-	-	-	-	-	-	0.0
H04	0.25	0	TYP	68	-	-	-	-	-	80	-	-	-	-	-	-	38	-	0.0
	6.35			20	-	-	-	-	-	80	-	-	-	-	-	-	262	-	0.0
H04	0.25	0	SMIN	68	80	45	-	-	-	-	-	-	-	-	-	-	-	-	0.0
	6.35			20	550	310	-	-	-	-	-	-	-	-	-	-	-	-	0.0
H04	0.375	0	TYP	68	-	-	-	-	-	78	-	-	-	-	-	-	34	-	0.0
	12.7			20	-	-	-	-	-	78	-	-	-	-	-	-	234	-	0.0
H04	0.375	0	SMIN	68	70	35	-	-	4	-	-	-	-	-	-	-	-	-	0.0
	12.7			20	480	240	-	-	4	-	-	-	-	-	-	-	-	-	0.0
H04	0.625	0	SMIN	68	65	30	-	-	6	-	-	-	-	-	-	-	-	-	0.0
	15.9			20	450	205	-	-	6	-	-	-	-	-	-	-	-	-	0.0
O60	<1	0	TYP	68	-	-	-	-	-	28	-	-	-	-	-	-	30	-	0.0
	<25.4			20	-	-	-	-	-	28	-	-	-	-	-	-	207	-	0.0
O60	<1	0	SMIN	68	48	20	-	-	15	-	-	-	-	-	-	-	-	-	0.0
	<25.4			20	330	124	-	-	15	-	-	-	-	-	-	-	-	-	0.0
O60	1.5	0	SMIN	68	44	18	-	-	20	-	-	-	-	-	-	-	-	-	0.0
	38.1			20	305	18	-	-	20	-	-	-	-	-	-	-	-	-	0.0
O60	2.5	0	SMIN	68	40	15	-	-	25	-	-	-	-	-	-	-	-	-	0.0
	63.5			20	40	15	-	-	25	-	-	-	-	-	-	-	-	-	0.0

# ALLOY 360

## Physical Properties

	US Customary	Metric
Melting Point - Liquidus	1650 F	899 C
Melting Point - Solidus	1630 F	888 C
Density	0.307 lb/in <sup>3</sup> at 68 F	8.5 gm/cm <sup>3</sup> @ 20 C
Specific Gravity	8.5	8.5
Electrical Resistivity	39.9 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	67.0 Btu · ft/(hr · ft <sup>2</sup> ·°F)at 68F	116.0 W/m · °K at 20 C
Coefficient of Thermal Expansion	11.4 · 10 <sup>-6</sup> per °F (68-572 F)	20.5 · 10 <sup>-6</sup> per °C (20-300 C)
Specific Heat Capacity	0.09 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

## Typical Uses

### Architecture

Terrazzo Strip

### Automotive

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

### Builders Hardware

Lock Bodies, Hardware, Fittings

### Consumer

Hot Combs (to Straighten Hair)

### Fasteners

Bolts, Nuts, Screws

### Industrial

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

### Plumbing

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