CDA377 (Forging Brass)

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

	Cu	Fe	Pb	Zn
Min. /Max.	58.0-61.0	.30	1.5-2.5	Rem.
Nominal	59.5	-	2.0	38.0

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

Applicable Specifications

Product	Specification
Bar, Forging	ASTM B124
Forgings, Die	AMS 4614 ASME SB283 ASTM B283 SAE J461, J463
Rod, Forging	AMS 4614 ASTM B124
Shapes, Forging	ASTM B124

Common Fabrication Processes
Hot Forging and Pressing, Hot heading and upsetting, Machining

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	Poor
Capacity for Being Hot Formed	Excellent
Forgeability Rating	100
Machinability Rating	80

Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Annealing Minimum	800	427
Annealing Maximum	1100	594
Annealing Time		
Hot Works Minimum	1200	649
Hot Works Maximum	1500	816

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)	El	Rockwell Hardness	Vickers Hard.	Brinell Hard.	Shear Strength	Fatigue Strength*	Izod Impact Strength
	in.	%		F	ksi	ksi	ksi	ksi	%	BCF	30T500	5003000	ksi	ksi	ft-lb
	mm.			C	MPa	MPa	MPa	MPa					MPa	MPa	J
Shapes															
M30	1	0	TYP	68	52	20	-	-	45-	-	78-	-	-	-	0.0
	25.4			20	359	138	-	-	45-	-	78-	-	-	-	0.0
Rod															
M30	1	0	TYP	68	52	20	-	-	45-	-	78-	-	-	-	0.0
	25.4			20	359	138	-	-	45-	-	78-	-	-	-	0.0

*Fatigue Strength: 100 x 10^6 cycles, unless indicated as [N] X 10^6.

Physical Properties

	US Customary	Metric
Melting Point - Liquidus	1640 F	893 C
Melting Point - Solidus	1620 F	882 C
Density	0.305 lb/in^3 at 68 F	8.44 gm/cm^3 @ 20 C
Specific Gravity	8.440	8.44
Electrical Resistivity	38.40 ohms-cmil/ft @ 68 F	6.38 microhm-cm @ 20 C
Electrical Conductivity	27 %IACS @ 68 F	0.158 MegaSiemens/cm @ 20 C
Thermal Conductivity	69 Btu · ft/(hr · ft2·^{o}F)at 68F	119.4 W/m · ^{o}K at 20 C
Coefficient of Thermal Expansion	11.50 · 10^{-6} per ^{o}F (68-572 F)	20.7 · 10^{-6} per ^{o}C (20-300 C)
Specific Heat Capacity	0.090 Btu/lb/^{o}F at 68 F	377.1 J/kg · ^{o}K at 293 K
Modulus of Elasticity in Tension	15000 ksi	103400 MPa
Modulus of Rigidity	5600 ksi	38610 MPa

Tempers Most Commonly Used

Flat Products	
BAR, DRAWN	H02, M20
BAR, ROLLED	H02, M20

Other	
ROD	H02, M20, M30
SHAPES	M30

Typical Uses

Builders Hardware
Door Handles, Decorative Knobs, Furniture Hardware

Building
Valve Bodies for Refrigeration, Chemicals

Consumer
Valve Bodies for Scuba & Propane Spray Tanks, Valve Bodies for Agricultural Spray Tanks, Golf Putters

Electrical
Fuse Bodies, Covers

Industrial
Valve Components, Forgings and Pressings of All Kinds

Casting Characteristics
No casting characteristics available for this alloy.