

NICKEL ALUMINUM BRONZE (C63000)

TYPICAL USES

C63000 Nickel Aluminum Bronze is an extruded aluminum bronze that contains nickel, and is alloyed for exceptional strength and toughness. It's used where higher mechanical properties are required. It's used in equipment for the energy markets, in aircraft, marine and a host of other industrial applications. It finds use as valve stems, high strength bushings, valve guides and seats, gears, cams, ship propellers, as well as propeller nuts and shafts.



CONTACT US

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TYPICAL USES

Product Category	Product	Reason
Industrial	Aircraft Parts	Corrosion Resistance, Wear Resistance, Impact Resistant, High Strength
	Balls	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Salt Water) (Numerous Environments), Galling Resistance, Wear Resistance, High Strength
	Bearings	Corrosion Resistance, Resistant to Abrasive Wear, Toughness, Heavy Load Strength
	Bushings	Corrosion Resistance, Resistant to Abrasive Wear, Toughness, Heavy Load Strength
	Cams	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Salt Water) (Numerous Environments), Galling Resistance, Wear Resistance, High Strength
	Condenser Tube for Power Stations and Desalting Unit	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Salt Water) (Numerous Environments), Wear Resistance, High Strength
	Corrosion Resistant Articles	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Salt Water) (Numerous Environments), High Strength
	Gears	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Salt Water) (Numerous Environments), Galling Resistance, Wear Resistance, High Strength
	Heat Exchanger Tube	Thermal Conductivity, Corrosion Resistance, Weldability, Thermal Conductivity
	Hydraulic Bushings for Earth Moving Equipment	Corrosion Resistance, Resistant to Abrasive Wear, Impact Resistant, High Strength
	Plunger Tips	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Salt Water) (Numerous Environments), Wear Resistance, High Strength
	Pump Parts	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Numerous Environments), Wear Resistance, High Strength
	Pump Shafts	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Salt Water) (Numerous Environments), Wear Resistance, High Strength
	Shafting	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Salt Water) (Numerous Environments), Wear Resistance, High Strength
	Structural Members	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Salt Water) (Numerous Environments), High Strength
	Tanks	Electrical Conductivity, Corrosion Resistance to Chemicals, High Strength, Weldability
	Valve Balls	Cavitation Corrosion Resistance, Erosion Corrosion Resistance, Pitting Corrosion Resistance, Resistance to Corrosion by a broad variety of Corrosive Media, Retains Surface Finish, Wear Resistance
Valve Guides	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Salt Water) (Numerous Environments), Wear Resistance, High Strength	
Valve Seats	Corrosion Resistance (Chemicals) (Non Oxidizing Acids) (Fresh Water) (Salt Water) (Numerous Environments), Wear Resistance, High Strength	
Welded Piping Systems	Corrosion Resistance, High Strength, Weldability	
Marine	Bolts	Corrosion Resistance (Chemicals) Fresh Water (Salt Water) (Numerous Environments), Impact Resistance, High Strength
	Nuts	Corrosion Resistance (Chemicals) Fresh Water (Salt Water) (Numerous Environments), High Strength
	Propellers	Corrosion Resistance, Wear Resistance, High Strength
	Pump Parts	Corrosion Resistance, Wear Resistance, High Strength
	Ship Propellers	Cavitation Corrosion Resistance, Corrosion Resistance to Salt Water, High Strength, Weldability
Plumbing	Fittings	Corrosion Resistance, High Strength

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MECHANICAL PROPERTIES

Form	Temper Code	Tensile Strength (ksi)	YS-0.5% Ext (ksi)	Elongation (%)	Rockwell B scale	Shear Strength (ksi)	Torsion Modulus (ksi)	Izod (ft-lbs)	Compressive Strength .1 in. set/in. (ksi)	Fatigue Strength** (ksi)	Section Size (in)	Cold Work (%)
Bar	M30	90 Typ	50 Typ	15 Typ	96 Typ						3	
	HR50	100 Typ	60 Typ	15 Typ	96 Typ						2	10
	HR50	110 Typ	62 Typ	15 Typ	97 Typ		6.4 Typ	12 Typ	150 Typ	37 Typ	1	10
Rod	M30	100 Typ	60 Typ	15 Typ	96 Typ	62 Typ				36 Typ	4	
	HR50	118 Typ	75 Typ	15 Typ	98 Typ	70 Typ				37 Typ	1	10
	HR50	115 Typ	65 Typ	18 Typ	96 Typ	69 Typ				38 Typ	2	10
	HR50	112 Typ	62 Typ	20 Typ	96 Typ	65 Typ				37 Typ	3	10

* Measured at room temperature, 68°F (20°C).
 ** Fatigue Strength: 100 x 106 cycles, unless indicated as [N] x 106.

CHEMICAL PROPERTIES

Element								
	Cu(1,2)	Sn	Zn	Fe	Ni(3)	Al	Mn	Si
Min (%)				2	4	9		
Max (%)	Rem	0.2	0.3	4	5.5	11	1.5	0.25

(1) Cu + Sum of Named Elements 99.5% min.(2) Cu value includes Ag.(3) Ni value includes Co.

FABRICATION PROPERTIES

Machining Technique	Suitability
Soldering	Not Recommended
Brazing	Fair
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Good
Spot Weld	Good
Seam Weld	Good
Butt Weld	Good
Capacity for Being Cold Worked	Poor
Capacity for Being Hot Formed	Good
Forgeability Rating	75
Machinability Rating	30

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