

C63000 Nickel Aluminum Bronze

Spec Equivalents: AMS 4640, SAE J463, QQ-C-465B, ASME SB150, ASTM B-150, B-124, B-171, B-283

C63000 (AMS 4640 - CDA 630) Nickel Aluminum Bronze alloy is an excellent choice for applications involving heavy loads, abrasive wear resistant, friction, abrasive wear and corrosion. The addition of nickel increases the strength of alloy without effecting its excellent ductility, toughness and corrosion resistance. Typical applications for C63000 nickel aluminum bronze included aircraft landing gear components, strut bearings, main pistons, trunnion bearings and similar vital components.



Typical Uses :

- **Industrial:** Hydraulic Bushings for Earth Moving Equipment, Corrosion Resistant Articles, Bushings, Bearings, Heat Exchanger Flanges, Heat Exchanger Headers, Tanks, Valve Balls, Structural Members, Pump Shafts, Aircraft Parts, Valve Guides, Plunger Tips, Welded Piping Systems, Balls, Gears, Cams, Pump Parts, Shafting, Condenser Tube for Power Stations and Desalting Units, Valve Seats
- **Marine :** Pump Parts, Bolts, Nuts, Propellers, Ship Propellers
- **Plumbing :** Faucets

Equivalent Specifications:

Specifications	Designation
ISO	CuAl0Ni5Fe4
European	CuAl0Ni5Fe4
BS	CA 104
JIS	C 6301
Russian	BrAZN10.4.4

Chemical Composition:

	Al	Cu	Fe	Mn	Ni	Si	Sn	Zn
Min/Max	9.0 - 11.0	Rem	2.0 - 4.0	1.5	4.0 - 5.5	0.25	0.2	0.3
Nominals	10	82	3	-	5	-	-	-

Specification:

End Product	Specification
Bar	AMS 4640, ASME SB150, ASTM B150, FEDERAL QQ-C-450, SAE J463, J461
Bar, Forging	ASTM B124
Bolts	ASTM F468
Forgins, Die	AMS 4640, ASTM B283, MILITARY MIL-B-16166
Nuts	ASTM F467
Plate	ASTM B171, FEDERAL QQ-C-450
Plate, Condenser Tube	ASME SB171, ASTM B171

Rod	AMS 4640, ASME SB150, ASTM B150, SAE J463, J461
Rod, Forging	ASTM B124
Screws	ASTM F468
Shapes	AMS 4640, ASTM B150, SAE J463, J461
Shapes, Forging	ASTM B124
Sheet	FEDERAL QQ-C-450

Fabrication:

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

Physical Properties :

Product Property	US Customary	Metric
Coefficient of Thermal Expansion	9.0 $\times 10^{-6}$ per oF (68-572 F)	16.2 $\times 10^{-6}$ per $^{\circ}$ C (20-300 C)
Density	0.274 lb/in ³ @ 68 F	7.58 gm/cm ³ @ 20 C
Electrical Conductivity	7 %IACS @ 68 F	0.041 MegaSiemens/cm @ 20 C
Electrical Resistivity	116.0 ohms-cmil/ft @ 68 F	19.28 microhm-cm @ 20 C
Melting Point Liquid US	1930 F	1054 C
Melting Point Solid US	1895 F	1035 C

Sizes Available

ROUND RODS	8mm To 70 mm
HEX	10mm To 60mm
SQUARE	10mm To 60mm
FLAT	10mm Min Thickness and max Width 120mm
BILLETS	Up to 200 mm
INGOTS	As per Specification

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