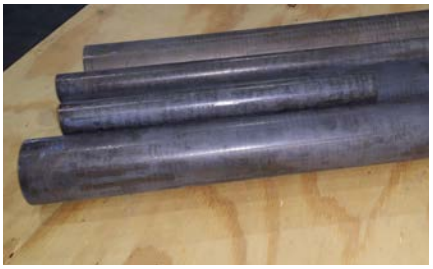
C63020 (AMS 4590) NICKEL ALUMINUM BRONZE

Offered in solid bars



C63020 (AMS 4590), Nickel Aluminum Bronze is a martensitic, heat-treated copper alloy, and the strongest in the Nickel Aluminum Bronze family. In some cases this alloy can be a substitute for Beryllium Copper, or other high nickel alloys, due to its exceptional properties. Its very high mechanical properties and hardness, with good ductility and toughness, make it ideal for applications involving very heavy loads, extreme abrasive wear, corrosion service, friction, deformation, and high temperatures.

Typical Uses

Aerospace
Landing Gear Parts, Strut Bushings

Oil & Gas
Rock Bit Bearings, Bushings, & Washers, BOP Parts, Wellhead Components

Automotive
Bearings, Off-Highway Truck Bushings, Forming Roll Bearings

Marine
Pump Parts, Bushings

Industrial
Cams, Shafting, Hydraulic Bushings for Earth Moving Equipment, Valve Balls, Cryogenics, Drill Guide Bushings

Military
Tank Track Bearings, Bushings, Aircraft Components

Sizes Available from NBM

Solid Bar.....3/4" - 8" diameter

Similar or Equivalent Specifications

AMS 4590 B
ASTM B-150-12

C63020 (AMS 4590) NICKEL ALUMINUM BRONZE

Chemical Composition, Tensile & Hardness, Physical Properties

Chemical Composition

	Cu[1,2]	Pb	Sn	Zn	Fe	Ni[3]	Al	Co	Cr	Mn
Min (%)	74.5				4.0	4.2	10.0			5.0
Max (%)		0.03	0.25	0.30	5.5	6.0	11.0	0.20	0.05	1.5

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

Room Temp Tensile & Hardness Data

FORM	SECTION SIZE (INCHES)	TENSILE (KSI) MIN	YIELD (KSI) MIN	ELONGATION IN 2 INCHES	ROCKWELL
Rod	up to 1.0 inclusive	135	100	6	26 RC
	1-2 inclusive	130	95	6	26 RC
	2-4 inclusive	130	90	6	26 RC
	over 4	130	90	4	26 RC

TEMPERS:
HR50: extruded / cold drawn / heat treated (3/4" - 3" diameter inclusive)
TQ50: hot forged / heat treated (3 1/8" - 8" diameter inclusive)

Physical Properties

Density lb/cu in @ 68 °F..... **0.269**
Electrical Conductivity % IACS..... **6** est.
Thermal Conductivity (CGS)..... **0.11** est.

NBM Metals now produce and hold substantial inventories of NBM AMS 4881 Nickel Aluminum Bronze. NBM AMS 4881 is made in tube form and typically meets the full mechanicals of AMS 4590/C63020.

There are substantial cost savings available by utilizing NBM AMS 4881.

The values listed on this document represent reasonable approximations suitable for general engineering use. Due to commercial variations in composition and to manufacturing limitations, they should not be used for specification purposes. See applicable A.S.T.M. Specification references.

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