



AMS 4590

NICKEL ALUMINUM BRONZE

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LEADING MANUFACTURER & MASTER DISTRIBUTOR OF BRASS, BRONZE, & COPPER ALLOYS



Offered in solid bars.

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.

Sizes Available From NBM

SOLID BAR 3/4" - 8" diameter

Spec Equivalents

C63020
ASTM B-150

Chemical Composition

	Cu ⁽¹⁾	Al	Cr	Co	Fe	Pb	Mn	Ni ⁽²⁾	Sn	Zn
min/max	74.5 min	10.0-11.0	.05	.20	4.0-5.5	.03	1.5	4.2-6.0	.25	.30
nominal	-	10.5	-	-	4.7	-	-	5.1	-	-

(1) Cu value includes Ag.
(2) Ni value includes Co.
NOTE: Cu +(sum of named elements) = 99.5% min.

Typical Uses

Oil & Gas

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

Aerospace

Landing Gear Parts, Strut Bushings

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

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www.nbmmetals.com



**NATIONAL
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The logo for AMS 4590, featuring the text "AMS 4590" in white on a green rectangular background.

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Room Temp Tensile & Hardness Data

FORM	SECTION SIZE (INCHES)	TENSILE (KSI) MIN	YIELD (KSI) MIN	ELONGATION IN 2 INCHES	ROCKWELL
ROD (TQ50)	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)269
Electrical Conductivity %IACS 6% est.
Thermal Conductivity (CGS) 0.11 est.



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