AMS 4590-C63020

✓ STANDARD-STOCKED PRODUCT

Extruded

Product Description:	Nickel-Aluminum Bronze
Tempers:	TQ50 Quenched and Tempered
Solids:	¾" to 4" O.D.
Hex:	Consult Mill
Rectangles:	Consult Mill
Standard Lengths:	24"

Typical Uses

Aerospace	bearings, bushings
Industrial	bearings, forming dies for roll bearings, hydraulic bushings for earth-moving equipment, valve balls, valve parts (cryogenic)

Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C63020	B150 B150M		4590			

Chemical Composition

Cu%	Pb%	Sn%	Zn%	Fe%	Ni%[1]	Al%	Co%	Cr%	Mn%	Si%
Rem.	0.03	0.25	0.30	4.00-5.50	4.20-6.00	10.00-11.00	0.20	0.05	1.50	0.15

Chemical Composition according to AMS 4590

[1]Ni value includes Co.
Note: Cu + Sum of Named Elements, 99.5% min. Single values represent maximums.

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in^3 at 68 ˚F)	Density (gm/cu^3 at 20 ˚C)
C63020		0.275	7.6

CONCAST METAL PRODUCTS CO.

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Mechanical Properties

Mechanical Properties according to AMS 4590
C63020
TQ50 Quenched and Tempered

SIZE RANGE: UP TO 1" DIAMETER INCLUSIVE

Tensile Strength, min		Yield Strength, at 0.2% Offset, min		Elongation, in 2 in. (50.8 mm) or 4D, min	Rockwell "C" Hardness	Remarks
ksi	MPa	ksi	MPa	%	min HRC	
135	931	100	689	6	26	

SIZE RANGE: OVER 1" TO 2" DIAMETER INCLUSIVE

Tensile Strength, min		Yield Strength, at 0.2% Offset, min		Elongation, in 2 in. (50.8 mm) or 4D, min	Rockwell "C" Hardness	Remarks
ksi	MPa	ksi	MPa	%	min HRC	
130	896	95	655	6	26	

SIZE RANGE: OVER 2" TO 4" DIAMETER INCLUSIVE

Tensile Strength, min		Yield Strength, at 0.2% Offset, min		Elongation, in 2 in. (50.8 mm) or 4D, min	Rockwell "C" Hardness	Remarks
ksi	MPa	ksi	MPa	%	min HRC	
130	896	90	621	6	26	

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1940 to 1967 ˚F	1060 to 1075 ˚C
Density	0.274 lb/in^3 at 68 ˚F	7.6 gm/cm^3 at 20 ˚C
Specific Gravity	7.6	7.6
Electrical Resistivity	132.33 ohms-cmil/ft at 68 ˚F	22.0 microhm-cm at 20 ˚C
Thermal Conductivity	31.2 Btu/sq ft/ft hr/˚F at 68 ˚F	54.0 W/m at 20 ˚C
Coefficient of Thermal Expansion 68-572	9.4 · 10^{-6} per ˚F (68-572 ˚F)	17.0 · 10^{-6} per ˚C (20-300 ˚C)

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