

Technical Data Sheet

AMPCO[®] 15

Extruded aluminum bronze rod

Description

A wrought aluminum-iron-copper alloy recommended for medium-duty applications involving wear and fatigue, especially where higher ductility is required for cold working.

Uses include: cams, bushings, bearing retainer cages, valve stems and guides, sleeve bearings.

AMPCO[®] 15 alloy will maintain mechanical properties at temperatures up to 315°C. It has a machinability rating of 50%. The alloy provides excellent corrosion resistance to sea water and non-oxidizing mineral acids. Can be welded with gas-shielded and shielded metal-arc processes. Brazing, soldering and oxyfuel gas welding are not recommended.

Hot and cold formability is good with a forgeability rating of 75%. AMPCO[®] 15 alloy can be hot worked at temperatures from 760° to 900°C and annealed between 595° and 650°C.

The consistent superiority of AMPCO[®] 15 alloy over commercial bronze is due, in large part, to the unique distribution of alloy microstructure, often referred to as the "AMPCO-Phase". Only AMPCO[®] alloys offer this metallurgical advantage.

Chemistry

Copper 88%, Aluminum 9%, Iron 3%.

Mechanical Properties* (contd)

Ultimate in Compression (MPa)	896
Proportional Limit (MPa)	124
Fatigue Strength (MPa @ 10 ⁸ cycle).....	207
Impact-Charpy V-notch (J)	30-34
Izod (J)	43-47
Modulus of Elasticity (Tension), GPa.....	117
Modulus of Rigidity (GPa)	44
Poisson's Ratio.....	.328

*based on 25.4 mm dia. test bars

Physical Properties

Density (lbs./dm ³)276
Specific Gravity (kg/dm ³).....	7.65
Specific Heat (J/g . K)38
Coefficient of Thermal Expansion	
(1/°C)	16.2 x 10 ⁻⁶
Electrical Conductivity (% IACS).....	12
Electrical Resistivity	
(m/ohm.mm ² @ 20°C).....	6.94
Thermal Conductivity	
(W/m . K @ 20°C)	54
Magnetic Permeability.....	1.2

Specifications

ASTM	B-150 C61900, B-150 C62300
ASME	SB-150 C62300 (thru 76.2 mm dia)
SAE	J-463 C62300 (thru 76.2 mm dia)
AMS.....	4635 (thru 76.2 mm dia)

Extruded-Drawn- Stress Relieved (Temper HR-50)	Tensile Strength		Yield Strength		Elongation % in 2" min.	Hardness	
	min. KSI	(MPa)	min. KSI	(MPa)		Nom. BHN	(Rockwell)
12.7 mm and under	90	(620)	50	(345)	15	183	(89B)
Over 12.7 to 25.4 incl.	88	(605)	44	(305)	15	174	(88B)
Over 25.4 to 50.8 incl.	85	(586)	42	(289)	20	170	(87B)
Over 25.4 to 76.2 incl.	80	(551)	37	(255)	30	163	(85B)