

Technical Data Sheet

AMPCO[®] 642

Aluminum-silicon bronze alloy



Description

A wrought aluminum-silicon-copper alloy used for valve seats and stems, marine hardware, pole line hardware, bushings and bearings, cams, bolts and nuts, valve bodies and similar components.

AMPCO[®] 642 alloy has excellent capacity for hot forming, with a hot forgeability rating of 80 and a machinability rating of 60.

Joining, using the brazing and arc welding methods, is only fair. Soldering and oxyacetylene welding are not recommended.

Chemistry

Copper 91%, Aluminum 7%, Silicon 2%

Physical Properties

Density (lbs./cu in).....	0.278
Specific Gravity (kg/dm ³)	7.69
Coef. of Thermal Expansion (1 / °C).	17.1 x 10 ⁻⁶
Thermal Conductivity (W/m.K @ 20°C).....	45
Electrical Resistivity (m/Ohm.mm ² @ 20°C)	4.64
Electrical Conductivity (% IACS @ 20°C).....	8
Thermal Capacity (J/g.K @ 20°C).....	0.38
Modulus of Elasticity E (GPa)	110
Modulus of Rigidity (GPa)	41.4

Mechanical Properties

Extruded-Dawn-Stress Relieved (HR-50)	Tensile Strength MPa	Yield Strength MPa	Elongation % in 50.8 mm	Hardness Brinell HB
12.7 mm and under	620	310	9	183
Over 12.7 to 25.4 mm	586	310	12	166
Over 25.4 to 50.8 mm	551	289	12	166
Over 50.8 to 76.2 mm	517	241	15	159
Hot Extruded (M-30)				
Over 76.2 to 101.6 mm	482	206	15	140
Over 101.6 mm	482	172	15	140

Nearest international specifications

ASTM	B-150 C64200
Federal	QQ-C-465 CA642
Military	A-15939A Comp.1
AMS	4634 (thru 3")