



Material Data Sheet 952

Copper-Aluminum-Iron (Aluminum Bronze)

Chemical Composition
(% max, unless shown as range or min.)

	Cu*	Pb	Fe	Ni	Al	Mn	Mg	Si	Zn	Sn
Min/Max	86.0min.	-	2.5-4.0	-	8.5-9.5	-	-	-	-	-
Nominal	87.7	-	3.3	-	9.0	-	-	-	-	-

*Cu + Sum of Named Elements, 99.5% min.

Applicable Specifications

Process or Ingot	Specification
Sand	ASME SB148
	ASTM B 148, B 763
	SAE J461, J462

Fabrication Practices

Joining Technique	Suitability
Soldering	Good
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Excellent
Coated Metal Arc Welding	Good

Physical Properties

	US Customary	Metric
Melting Point - Liquidus	1913 F	1045 C
Melting Point - Solidus	1907 F	1042 C
Density	0.276 lb/in ³ at 68 F	7.64 gm/cm ³ @ 20 C
Specific Gravity	7.64	7.64
Electrical Resistivity	94.0 ohms-cmil/ft @ 68 F	15.63 microhm-cm @ 20 C
Electrical Conductivity	11 %IACS @ 68 F	0.064 MegaSiemens/cm @ 20 C
Thermal Conductivity	29.1 Btu · ft/(hr · ft ² · °F) at 68F	50.4 W/m · °K at 20 C
Coefficient of Thermal Expansion	9.0 · 10 ⁻⁶ per °F (68-572 F)	16.2 · 10 ⁻⁶ per °C (20-300 C)
Specific Heat Capacity	0.09 Btu/lb/°F at 68 F	377.1 J/kg · °K at 293 K
Modulus of Elasticity in Tension	15000 ksi	103400 MPa
Magnetic Permeability*	1.2	1.2
Poisson's Ratio	0.31	0.31

Heat Treatment

Stress Relieving:
600° F (315C) for 1h/in. of Section Thickness

Cannot be strengthened by heat treatment

Machinability Rating: 20
(C36000, Free Cutting Brass = 100)

Typical Uses:

Bearings & Bushings
Acid Resisting Pumps
Gears
Guides
Pump Rods
Gun Mounts & Slides
Plungers
Valve Seats

Mechanical Properties

		US Customary	Metric	Applicable Specification
Tensile Strength	Minimum	65 ksi	448 MPa	ASME SB148, ASTM B 148, B763 SAE J462-A
	Minimum	65 ksi	450 MPa	
	Typical	80 ksi	552 MPa	
Yield Strength (0.5% Ext. under load)	Minimum	25 ksi	172 MPa	ASME SB148, ASTM B148, B763 SAE J462-A
	Minimum	25 ksi	170 MPa	
	Typical	27 ksi	186 MPa	
Elongation	Minimum	20 %, in 2 in.	20 %, in 51 mm	ASTM B 148, B 763, SAE J462-A
	Typical	35 %, in 2 in.	35 %, in 51 mm	
Brinell Hardness (3,000 kg load)	Minimum	110	110	ASTM B 148, B763
	Typical	125	125	

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