

Aluminum Bronze A1 Bare

Specifications: AWS A5.7 / ASME SFA 5.7

Classification: ERCuAl-A1

Description:

Aluminum Bronze A1 is an iron free alloy used primarily to overlay bearings and wear-resistant surfaces that require a 125 BHN hardness and to resist corrosion, especially from salt water, metal salts and acids in varying concentrations and temperatures. It is not recommended for joining since the deposit has a tendency to be hot short. Applications include, tube sheets, valve seats, pickling hooks, impellers, chemical plants, and pulp mills.

Typical Chemistry Analysis					
Cu	Zn	Sn	Mn	Fe	Si
Rem	0.20 max		0.50 max		0.10 max
Ni	P	Al	Pb	Other	
		6.0 - 8.5	0.02 max	0.50 max	

Typical Mechanical Properties	
Tensile Strength	68,000 psi
Yield Strength	28,000 psi
Elongation % in 2"	47 %

Aluminum Bronze A2 Bare

Specifications: AWS A5.7 / ASME SFA 5.7

Classification: ERCuAl-A2

Description:

Aluminum Bronze A2 is a very versatile bare wire. It is used for joining aluminum bronze of similar composition, silicon and manganese bronze, high strength copper-zinc alloys, some copper-nickel alloys, ferrous metals and dissimilar metals. Dissimilar applications include aluminum bronze to steel and copper to steel. It is also used for building up or overlaying metal for wear and corrosion resistant surfaces. Aluminum Bronze A2 is most commonly used for marine maintenance and repair welding of ship propellers, pump housings, rigging jacks, piston heads, bearings and many overlay or surfacing applications.

Typical Chemistry Analysis					
Cu	Zn	Sn	Mn	Fe	Si
Rem	0.02 max			0.5 - 1.5	0.10 max
Ni	P	Al	Pb	Other	
		8.5- 11.0	0.02 max	0.50 max	

Typical Mechanical Properties	
Tensile Strength	79,000 psi
Yield Strength	35,000 psi
Elongation % in 2"	28 %

Aluminum Bronze A2 Coated

Specifications: AWS A5.6 / ASME SFA 5.6

Classification: ECuAl-A2

Description:

Aluminum Bronze A2 is a very versatile electrode. It is used for joining aluminum bronze of similar composition, silicon and manganese bronze, high strength copper-zinc alloys, some copper-nickel alloys, ferrous metals and dissimilar metals. Dissimilar applications include aluminum bronze to steel and copper to steel. It is also used for building up or overlaying metal for wear and corrosion resistant surfaces. Aluminum Bronze A2 is most commonly used for marine maintenance and repair welding of ship propellers, pump housings, rigging jacks, piston heads, bearings and many overlay or surfacing applications.

Typical Chemistry Analysis					
Cu	Zn	Sn	Mn	Fe	Si
Rem				0.5 - 5.0	1.5 max
Ni	P	Al	Pb	Other	
		8.5 - 11.0	0.02 max	0.50 max	

Typical Mechanical Properties	
Tensile Strength	77,000 psi
Yield Strength	35,000 psi
Elongation % in 2"	27 %

Data contained in this catalog are typical of the products described, but are not suitable for specifications.

Aluminum Bronze A3 Bare

Specifications: AWS A5.7 / ASME SFA 5.7

Classification: ERCuAl-A3

Description:

Aluminum Bronze A3 is a higher strength aluminum bronze used to joining and repair welding of similar compositions. Aluminum Bronze A3 applications include, bearing overlays, hydraulic pistons, impellers, turbine runners, press rams, steel mill rolls, ceiling machine mandrels, breaker blocks, valve seats and parts, mill slippers, and cable sheaves.

Typical Chemistry Analysis						
Cu	Zn	Sn	Mn	Fe	Si	
Rem	0.10 max			2.0 - 4.5	0.10 max	
Ni	P	Al	Pb	Other		
		10.0- 11.5	0.02 max	0.50 max		

Typical Mechanical Properties	
Tensile Strength	90,000 psi
Yield Strength	40,000 psi
Elongation % in 2"	20 %

Aluminum Bronze A4 Bare

Specifications: AWS A5.7 / ASME SFA 5.7

Classification: ERCuNiA1

Description:

Aluminum Bronze A4 bare wire is a nickel-aluminum bronze alloy used to weld cast and wrought nickel-aluminum bronze. It has excellent resistance to corrosion, erosion, and cavitations in salt or brackish water. Aluminum Bronze A4 applications include, ship fittings, ship propellers, power plant valves, piping systems, intake screens, oil recovery pumps, and propeller gear housings .

Typical Chemistry Analysis						
Cu	Zn	Sn	Mn	Fe	Si	
Rem	0.10 max		0.60- 3.50	3.0 - 5.0	0.10 max	
Ni	P	Al	Pb	Other		
4.0 - 5.5		8.50- 9.50	0.02 max	0.50 max		

Typical Mechanical Properties	
Tensile Strength	104,000 psi
Yield Strength	59,000 psi
Elongation % in 2"	23 %

Aluminum Bronze A4 Coated

Specifications: AWS A5.6 / ASME SFA 5.6

Classification: ECuNiAl

Description:

Aluminum Bronze A4 electrode is a nickel-aluminum bronze alloy used to weld cast and wrought nickel-aluminum bronze. It has excellent resistance to corrosion, erosion, and cavitations in salt or brackish water. Aluminum Bronze A4 applications include, ship fittings, ship propellers, power plant valves, piping systems, intake screens, oil recovery pumps, and propeller gear housings .

Typical Chemistry Analysis						
Cu	Zn	Sn	Mn	Fe	Si	
Rem			0.5-3.5	3.0 - 6.0	1.5 max	
Ni	P	Al	Pb	Other		
4.0 - 6.0		8.5- 9.5	0.02 max	0.50 max		

Typical Mechanical Properties	
Tensile Strength	99,000 psi
Yield Strength	58,000 psi
Elongation % in 2"	25 %

Data contained in this catalog are typical of the products described, but are not suitable for specifications.

Deoxidized Copper

Specifications: AWS A5.7 / ASME SFA 5.7

Classification: ERCu

Description:

Deoxidized Copper provides dense, high quality deposits with relatively high electrical conductivity for use in joining and overlay with inert gas processes. It is used to fabricate deoxidized copper, repair weld copper castings, to weld galvanized steel and deoxidized copper to mild steel where high strength joints are not required. Applications include, billet molds, conductor rolls, heater elements, bus bars, copper connectors, and steel mill electrode holders.

Typical Chemistry Analysis					
Cu	Zn	Sn	Mn	Fe	Si
98 min		1.0 max	0.50 max		0.50 max
Ni	P	Al	Pb	Other	
	0.15 max	0.01 max	0.02 max	0.5 max	

Typical Mechanical Properties	
Tensile Strength	29,000 psi
Yield Strength	8,000 psi
Elongation % in 2"	29 %

Phos-Bronze C

Specifications: AWS A5.7 / ASME SFA5.7

Classification: ERCuSn-C

Description:

Phos-Bronze C is recommended for high strength welds on phosphor bronze materials. Weld deposits have high tensile and yield strengths and greater hardness due to the 7 to 9 percent Tin content. It is used as an overlay on cast iron or steel, to join dissimilar metals, for maintenance repair and fabrication of valve bodies, seats, bearings, bushings, gears, propellers, impeller blades and housings. Preheat is recommended.

Typical Chemistry Analysis					
Cu	Zn	Sn	Mn	Fe	Si
Rem	0.20 max	7.0 - 9.0		0.10 max	
Ni	P	Al	Pb	Other	
	0.10-0.35	0.01 max	0.02 max	0.50 max	

Typical Mechanical Properties	
Tensile Strength	65,000 psi
Yield Strength	psi
Elongation % in 2"	42 %

Silicon Bronze

Specifications: AWS A5.7 / ASME SFA5.7

Classification: ERCuSi-A

Description:

Silicon Bronze contains 3% Silicon and trace amounts of manganese, tin and zinc. It is used for oxy-acetylene welding and GMAW welding of copper, copper-silicon and copper-zinc metals to themselves and to steel. Silicon Bronze is excellent for plain or galvanized steel sheet metal as well as other coated steels. It is also used for surfacing areas that are subjected to corrosion. For oxy-acetylene welding, the gas flame should be slightly oxidizing. Keep the weld puddle small in order to promote fast solidification and minimize cracking. Preheat is NOT recommended.

Typical Chemistry Analysis					
Cu	Zn	Sn	Mn	Fe	Si
Rem	1.0 max	1.0 max	1.5 max	0.50 max	2.8 - 4.0
Ni	P	Al	Pb	Other	
		0.01 max	0.02 max	0.50 max	

Typical Mechanical Properties	
Tensile Strength	50,000 psi
Yield Strength	psi
Elongation % in 2"	65 %

Data contained in this catalog are typical of the products described, but are not suitable for specifications.

1400

Specifications: AWS A5.6 / ASME SFA5.6

Classification: ECuSn-C

Description:

1400 is an all position Phos-Bronze electrode used for joining copper base alloys to themselves and to stainless steels and cast irons. It is excellent for overlays on pumps, shafts, impellers and propeller blades. 1400 is used for building up bearing journals and frictional wear surfaces on heavier sections, galvanized iron, and ornamental iron. It provides a good color match on bronze and will work harden. Weld deposits are ductile, strong, and machinable. 1400 offers corrosion resistance to salt water and chemicals.

Typical Chemistry Analysis						
Cu	Zn	Sn	Mn	Fe	Si	
Rem		7.0 - 9.0		0.25 max		
Ni	P	Al	Pb	Other		
	0.05-0.35	0.01 max	0.02 max	0.50		

Typical Mechanical Properties	
Tensile Strength	50,000 psi
Yield Strength	30,000 psi
Elongation % in 2"	18 %

Low Fuming Bronze

Specifications: AWS A5.8 / ASME SFA5.8

Classification: RBCuZn-C

Description:

Low Fuming Bronze is available in bare and flux coated rods. It is a machinable brazing alloy used on steels, copper alloys, nickel alloys, and stainless steel. Low Fuming Bronze has a high tensile strength and good ductility. The weld deposits are non-porous for leak proof joints for water, oil and gas lines. The weld deposit freezes rapidly from fluid to a plastic state. Brazing flux is recommended.

Typical Chemistry Analysis						
Cu	Zn	Sn	Mn	Fe	Si	
56 - 60	Rem	0.80-1.10	0.01-0.50	0.25-1.20	0.04-0.15	
Ni	P	Al	Pb	Other		
0.20-0.80		0.01 max	0.05 max	0.50 max		

Typical Mechanical Properties	
Tensile Strength	63,000 psi
Yield Strength	psi
Elongation % in 2"	25 %

Nickel Silver

Specifications: AWS A5.8 / ASME SFA5.8

Classification: RBCuZn-D

Description:

Nickel Silver is a low fuming, cadmium free bronze that is available in bare or flux coated rod. It is an excellent replacement for high cost silver brazing alloys when higher brazing temperatures are acceptable. Weld deposits have very high tensile strength, good ductility and excellent corrosion resistance. The weld deposits are also machinable and work-harden when put into service. Brazing flux is recommended.

Typical Chemistry Analysis						
Cu	Zn	Sn	Mn	Fe	Si	
46.00-50.00	Rem				0.04-0.25	
Ni	P	Al	Pb	Other		
9.0-11.00	0.25 max	0.01 max	0.05 max	0.50 max		

Typical Mechanical Properties	
Tensile Strength	70,000 psi
Yield Strength	psi
Elongation % in 2"	25 %

Data contained in this catalog are typical of the products described, but are not suitable for specifications.