



# Silicon Bronze

## (ERCuSi-A)

### Specifications

AWS A5.7 / ASME SFA5.7 Class ERCuSi-A

### Description

Unibrazed Silicon Bronze is a copper based filler metal that contains 3% Silicon and trace amounts of manganese, tin and zinc. It is used primarily for oxyacetylene welding of copper, copper-silicon and copper-zinc metals to themselves and to steel. Unibrazed 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. The Oxyacetylene gas flame should be slightly oxidizing. Keep the weld puddle small in order to promote fast solidification and minimize cracking. A high boric acid flux should be used both before and during welding. Preheat is NOT recommended.

### Typical Chemical Composition

Copper *	Balance
Zinc	1.0 max.
Tin	1.0 max.
Manganese	1.5 max.
Iron	0.5 max.
Silicon	4.0 max.
Aluminum	0.01 max.
Lead	0.02 max.
Others	0.50 max.

\*includes Silver

### Typical Mechanical Properties

Tensile Strength	50,000 psi, min.
Elongation, in 2 in.	65%
Brinnell Hardness	80 to 100

### Recommended Welding Parameters

Shielded Metal-arc (dcep)-Positive (If available)	Electrode Diameter	Amperes*	Gas Tungsten-arc	Filler Diameter	Amperes* (dcen)	Amperes* (achf)
	3/32"	50-110		1/16"	70-120	70-150
	1/8"	90-160		3/32"	120-160	140-230
	5/32"	130-180		1/8"	170-230	225-320
	3/16"	150-225		5/32"	220-280	175-300
				3/16"	280-330	200-320
Gas Metal-arc (dcep)-Positive	Wire Diameter	Voltage	Amperes*			
	.035"	20-26	100-200			
	.045"	22-28	100-250			
	1/16"	29-32	250-400			
	3/32"	32-34	350-500			

\*Use low side of range for iron- or nickel-base alloys; middle of range for bronze alloys; high side for copper.

### Gas Selection

**GTAW** 100% Helium 40-45 cfh  
 100% Argon 40-45 cfh

**GMAW** 100% Argon 45-55 cfh

Notice: The results reported are based upon testing of the product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of the product may produce different results due to varying conditions. An example of such conditions would be electrode size, plate chemistry, environment, weldment design, fabrication methods, welding procedure and service requirements. Thus the results are not guarantees for use in the field. The manufacturer disclaims any warranty of merchantability or fitness for any particular purpose with respect to its products.