SILICON BRONZE FASTENERS

IDEAL FOR COPPER ROOFING

SELF TAPPING TYPE A

SILICON BRONZE FASTENER PREASSEMBLED TO COPPER AND EPDM BONDED WASHER

SIZE	DB PART #	HEAD SIZE	TYPE	STD. CTN.	LBS. PER C	PRICE PER C BRKN CTN	FULL CTN	5 + CTNS
#10 X 1"	10N100SHBSB/A	1/4"	A	2500	0.97	54.95	44.30	38.50
#10 X 2"	10N200SHBSB/A	1/4"	A	2000	11.9	59.25	47.75	41.50

SILICON BRONZE CLIP SCREW

SIZE	DB PART #	DRIVE	TYPE	STD. CTN.	LBS. PER C	PRICE PER C BRKN CTN	FULL CTN	5 + CTNS
#10 X 1"	10N100SCXSB/A	PHIL	A	5000	0.71	28.85	23.25	20.20

COPPER RIVET

SIZE	DB PART #	RIVET MATERIAL	MANDREL MATERIAL	STD. CTN.	LBS. PER M	PRICE PER M BRKN CTN	FULL CTN	5 + CTNS
1/8" X 1/4"	MA-CB44B	COPPER	BRASS	10000	3.7	185.40	149.50	130.00

TABLE 1

"+ Corroded End (anodic, or least noble)

Magnesium Magnesium alloys Zinc	
Aluminum 1100 Cadmium Aluminum 2024-T4 Steel or Iron Cast Iron Chromium - Iron (active) Ni-Resist cast iron	
Type 304 Stainless (active) Type 316 Stainless (active)	
Lead tin solders Lead Tin	
Nickel (active) Inconel nickel-chromium alloy (active) Hastelloy Alloy C (active)	
Brasses Copper Bronzes Copper-nickel alloys Monel nickel-copper alloy	**Roofing** **< -- Material** **< -- Screw** **Material**
Silver solder Nickel (passive) Inconel nickel-chromium alloy (passive)	
Chromium-iron (passive) Type 304 Stainless (passive) Type 316 Stainless (passive) Hastelloy Alloy C (passive)	
Silver Titanium Graphite Gold Platinum	

"-- Protected End (cathodic, or most noble)

Galvanic Corrosion

Similar metals are compatible; dissimilar metals are not. When dissimilar metals contact in the presence of an electrolyte, a galvanic action occurs which causes one of the metals to corrode at a much faster than normal rate, while the other corrodes more slowly, if at all. The rate, location and extent of corrosion depends on three factors-

The difference in electrical potentials
The conductivity strength of The corroding medium, and
The relative sizes of The contacting areas.

All metals have electrical potentials. Through research, the potentials of different base metals and their alloys, when exposed to sea water, were measured and then ranked into a series. In an electrical couple, the metal of higher electrical potential is the cathode (-), that of the lower the anode (+). Current flows from the cathode to the anode, from the anode through the electrolyte (corroding medium), and back to the cathode. Corrosion occurs at the point the current leaves the anode to enter the electrolyte. When dissimilar metals contact, the anode corrodes, the cathode survives.

Galvanic Series

Table 1 presents the Galvanic Series of Metals and Alloys. The various metals are grouped. Those within the same group are reasonable compatible when used together; those from different groups cause a corrosion problem. Some metals, basically those with significant contents of nickel and chromium, are included in the series both in their active and passive conditions. Passivation (surface cleaning and sealing) lowers the metal's electrical potential and improves its corrosion behavior.

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