



A5.7 | COPPER AND COPPER ALLOY

Bar Rods and Electrodes

ERCu

ERCu (Deoxidized Copper) is a filler metal containing 98% or more copper with small amounts of Phosphorus and Silicon used for joining copper to itself or with galvanized or mild steel where high strength joints are not required. This easy flowing alloy produces weld deposits that match the color of copper, are electrically conductive and porosity free.

Applications

- Joining copper pipes, tanks, and copper fittings
- Joining deoxidized copper
- Overlaying steel surfaces to resist corrosion

AWS Specification

AWS A5.7/A5.7M:2007

AWS Classification ERCu

Welding Current AC - DCEP

Typical Wire Chemistry

Cu (including Ag)	98.0 min
Sn	1.0
Mn	0.50
Si	0.50
P	0.15
Al	0.01
Pb	0.02
OTHER	0.50

Typical Mechanical Properties (As Welded)

Melting Point	1967°F
Yield Strength, ksi	29
Tensile Strength, ksi	8
Elongation%, min	29

Available Diameters MIG with Operating Range in Amps

.035"	100 - 200
.045"	100 - 250
1/16"	250 - 400

Available Diameters TIG/Oxy Rod with Operating Range in Amps

1/16"	70 - 150
3/32"	225 - 400
1/8"	225 - 400

ERCuSi-A

Silicon Bronze (ERCuSi-A) is primarily used for MIG, TIG, and gas welding of copper, copper-silicon and copper-zinc base metals to themselves and to steel. It is an excellent choice for joining plain or galvanized sheet steel metal as well as other coated steels.

Applications

- Surfacing areas subject to erosion
- Joining copper, copper-silicon, and copper-zincs to themselves or steel

AWS Specification

AWS A5.7/A5.7M: 2007

AWS Classification ERCuSi-A

Welding Current AC - DCEP

Typical Wire Chemistry

Zn	1.0
Sn	1.0
Mn	1.5
Fe	0.50
Si	2.8 - 4.0
Al	0.01
Pb	0.02
Cu (including Ag)	REM
OTHER	0.50

Typical Mechanical Properties (As Welded)

Melting Point	1866°F
Tensile Strength, ksi	50
Elongation%, min	65

Available Diameters MIG with Operating Range in Amps

.023"	100 - 140
.030"	130 - 150
.035"	145 - 185
.045"	195 - 215
1/16"	260 - 280

Available Diameters TIG/Oxy Rod with Operating Range in Amps

1/16"	70 - 150
3/32"	150 - 200
1/8"	230 - 400

ERCuSn-A

Phos Bronze A (ERCuSn-A) is a copper-zinc bronze containing approximately 5% tin and up to 0.35% phosphorus added as a deoxidizer used to weld bronze and brass. It can also be used to weld copper if the presence of tin in the weld metal is not objectionable.

Applications

- Overlaying of steel
- Joining of 509-519 series tin-bronze base metals

AWS Specification

AWS A5.7/A5.7M:2007

AWS Classification ERCuSn-A

Welding Current AC - DCEP

Typical Wire Chemistry

Sn	4.0 - 6.0
P	0.10 - 0.35
Al	0.01
Pb	0.02
Cu (including Ag)	REM
OTHER	0.50

Typical Mechanical Properties (As Welded)

Tensile Strength, ksi	35
Brinell Hardness	70 - 85

Available Diameters MIG with Operating Range in Amps

.030"	130 - 140
.035"	140 - 160
.045"	165 - 185
1/16"	285 - 335

Available Diameters TIG/Oxy Rod with Operating Range in Amps

1/16"	100 - 120
3/32"	185 - 205
1/8"	300 - 615