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ERCuSi-A DATA SHEET

Pinnacle Alloys ERCuSi-A

AWS CLASS ERCuSi-A

CODE AND SPECIFICATION DATA:

AWS A5.7 ASME SFA 5.7

DESCRIPTION:

Pinnacle Alloys ERCuSi-A is a silicon bronze welding alloy (UNS C65600) for the inert gas welding of copper-silicon, copper zinc, copper to themselves, and also to mild steel. It can be used extensively in the welding of galvanized steel. The silicon content of 2.8-4% increases tensile strength, hardness, and work hardening rates. Silicon bronze also provides good corrosion resistance and has good weldability. Silicon bronze is hot short and extreme care must be exercised to avoid overheating the joint which tends to cause cracking.

DIAMETERS: .030", .035", .045", 1/16", 3/32", 1/8"

WELDING GUIDELINES:

- With gas metal-arc welding, the weld metal should be deposited in stringer beads, maintaining a small molten pool to avoid overheating the hot short silicon bronze base metal. Use argon gas for shielding and relatively high welding travel speeds.
- With the gas-tungsten arc welding process, welding is accomplished with DCEN (direct current electrode negative) current and argon or helium gas shielding. ACHF (alternating current high-frequency) with argon gas shielding may be used to take advantage of the arc cleaning action.
- Preheat slightly to remove moisture. Interpass temperature should not exceed 150°F (66°C).

TYPICAL CHEMICAL COMPOSITION (Wt% filler metal):

Aluminum (Al)	0.01 max
Copper (Cu)	Balance
Iron (Fe)	0.50 max
Lead (Pb)	0.02 max
Manganese (Mn)	1.50 max
Silicon (Si)	2.8-4.0
Tin (Sn)	1.00 max
Zinc (Zn)	1.00 max
Others	0.50 max

TYPICAL MECHANICAL PROPERTIES (nominal):

Ultimate Tensile Strength (psi)	50,000 psi (350 MPa)
Percent Elongation in 2"	40%
1/4" Deposit	80



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TYPICAL GMAW (MIG) WELDING PARAMETERS (DC Reverse Polarity; Electrode Positive Spray Transfer):

Diameter	WFS (ipm)	Amperage	Volts	Argon (cfh)
.030"	460-500	130-150	21-23	25
.035"	400-440	145-185	23-25	30
.045"	280-310	195-215	26-28	30
1/16"	150-210	260-280	27-30	40

TYPICAL GTAW (TIG) WELDING PARAMETERS (DCSP):

Material	2% Thoriated*	Filler Wire Size	Amperage (DC)	Amperage (AC)	Argon (cfh)	Gas Cup Size
1/16"	1/16"	1/16"	70-50	70-150	15	3/8" – 1/2"
3/32" – 1/8"	3/32"	3/32"	150-200	140-230	15	7/16" – 1/2"
3/16" – 1/2"	1/8"	3/32" – 1/8"	230-400	225-320	20	7/16" – 1/2"
1/2" – 1"	3/16"	3-16" – 1/4"	325-500	290-485	25	1/2"

* Electrode negative or ACHF.

NOTE: All parameters are suggested as basic guidelines and will vary depending on joint design, number of passes, and other factors.

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 the use in the field. The manufacturer disclaims any warranty of merchantability of fitness for any particular purpose with respect to its products.

CAUTION: Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standards A49.1, "Safety in Welding and Cutting," published by the American Welding Society, 550 NW LeJune Road, Miami, FL 33126: OSHA Safety and Health Standards 29 CRF 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210.

Pinnacle Alloys MSDS sheet may be obtained at www.pinnaclealloys.com.