XTR Silicon Bronze

AWS A5.7 ERCuSi-A

Description:

Silicon Bronze is a copper base welding alloy used in MIG and TIG applications but can also be oxyfuel welded. Commonly known by the name “Sil Bronze” and “Everdur 656”, this alloy is a popular choice in automotive shops.

Typical Applications:

XTR Silicon Bronze is typically used to join and overlay welding of copper zinc alloys, low copper materials and through galvanized sheet steel, also for an excellent option for overlay welding on low and unalloyed steel as well as cast iron. Corrosion resistance is good and therefore is suitable for surfacing in some corrosive applications. For MIG overlay welding of large work pieces preheating is recommended and is best practice to keep your weld pool small to minimize cracking issues post weld. For multilayer welding on steels, pulsed arc welding is recommended.

Chemistry:

	Typical	AWS Spec. Single values are max.
Zinc (Zn)	0.003	1.000
Tin (Sn)	0.025	1.000
Manganese (Mn)	0.870	1.500
Iron (Fe)	0.005	0.500
Silicon (Si)	3.035	2.80-4.00
Aluminum (Al)	0.003	0.010
Lead (Pb)	0.004	0.020

Mechanical Properties: (As Welded GMAW 100% Argon)

	Typical	AWS Spec. Single values are min.
Tensile Strength	50,500	50,000 psi
Hardness HBW	80-100 Brinell	80-100 Brinell
Melting Point	1,830°F	ns

Welding Positions:

All

Operating Parameters: MIG (GMAW), DCEP DC+

Spray ARC 100% Argon Gas or Mix 75 Ar, 25% Helium Shielding Gas

The addition of helium (25%) is encouraged on thicker pieces

Diameter	Amperage	Voltage	Speed (IPM)	Stickout (In.)	Flow Rate (CFH)
0.023 **(.6mm)**	70-120	17-22	450-520	1/2	25-30
0.030 **(.8mm)**	80-145	18-25	430-500	1/2	25-30
0.035 **(.9mm)**	110-200	21-26	380-450	1/2	30-40
0.045 **(1.14mm)**	120-230	23-28	250-320	1/2	30-40
1/16 **(1.6mm)**	250-350	27-32	145-250	1/2	35-45

For iron and steel alloys, stay on the low side of the settings, for copper alloys, stay on the high side of the above settings.

Operating Parameters: TIG (GTAW), DCEN DC-

Shielding gas use 100% Argon Shielding Gas

Argon, Helium mixtures preferred for greater penetration on thicker sections

Diameter	Amperage	Voltage	Tungsten Size	Flow Rate (CFH)	2% Thoriated 2% Ceriated 2% Lanthanum or Rare Earth Tungsten Electrodes are preferred
1/16 **(1.6mm)**	80-160	12	1/16 (1.6mm)	20-25	
3/32 **(2.4mm)**	130-270	12	3/32 (2.4mm)	25-30	
1/8 **(3.2mm)**	190-375	12	1/8 (3.2mm)	25-30	
5/32 **(4.0mm)**	260-470	12	5/32 (4.0mm)	30-35	

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