



Smoothcor[®] 81T1-A1

Classification: AWS A5.29 / ASME SFA 5.29 E81T1-A1C, E81T1-A1M

Description: Smoothcor 81T1-A1 is a ½% Mo low alloy steel flux cored wire used for single and multiple pass, all position welding of Carbon-Mo steels, where the addition of ½% Mo is required in the deposited metal. It is used in the fabrication of boilers and pressure vessels such as ASTM A161, A204, and A302 Gr. A plate and A335-P1 pipe. Smoothcor 81T1-A1 has excellent fluxing action, quick freezing slag, and increased productivity over solid and covered electrodes. Shielding gas: 100% CO₂ / 75% Ar, 25% CO₂. 40-55 cfh

Typical Deposit Chemistry: %

	C	Mn	P	S	Si	Mo
CO ₂	.07	.85	.011	.009	.28	.45
75Ar/25CO ₂	.07	.96	.011	.009	.35	.55

Typical Mechanical Properties:

	SR 1 hr. @ 1150°F	
	CO ₂	75Ar/25CO ₂
Tensile Strength(psi)	87,500	89,400
Yield Strength (psi)	74,300	74,400
Elongation	30	31
CVN (ft•lb f) @72°F	48	54

Typical Welding Parameters – Carbon & Low Alloy – Flux Cored -All position-CO₂*- DCEP

Dia.	Position	Operating Range		Optimum			
		Amps	Volts	Amps	WFS (ipm)	Volts	ESO
.035"	Flat	125-250	21-30	200	600	27	3/8"-3/4"
	Overhead	115-220	21-28	175	490	25	3/8"-3/4"
	Vertical Up	120-215	21-28	170	450	25	3/8"-3/4"
.045"	Flat	130-300	21-32	250	450	28	½ - 1"
	Overhead	150-280	21-30	190	305	26	½ - 1"
	Vertical Up	130-260	21-29	190	305	25	½ - 1"
.052"	Flat	140-330	19-32	275	400	28	½ - 1"
	Overhead	150-290	21-28	200	245	26	½ - 1"
	Vertical Up	140-270	21-27	200	245	25	½ - 1"
1/16"	Flat	150-400	22-34	330	330	29	½ - 1"
	Overhead	150-310	22-28	225	180	26	½ - 1"
	Vertical Up	150-280	22-27	225	180	25	½ - 1"

*For 75Ar/25CO₂ decrease voltage by 1 to 1.5 volts.

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.