Select 91-B3

Description:

Select 91-B3 is a low alloy steel electrode for single and multiple pass welding of certain high temperature, creep resistant materials in horizontal fillets and the flat position. The rutile slag system provides high welder appeal and good weld bead geometry.

Classification:

- E90T1-B3C, E90T1-B3M per AWS A5.29, ASME SFA 5.29

Characteristics:

- Rutile slag system provides good welder appeal and bead geometry.
- Deposit composition is nominally 2 ¼% chrome and 1% molybdenum.
- Higher deposition rates than covered or solid electrodes.

Applications:

Select 91-B3 deposits weldments with a composition matching those of ASTMA387 Gr 22 plate and A335 P22 pipe steels. These materials are used in the fabrication of pressure vessels, boilers, heat exchangers and other applications involved with high temperature exposure and creep resistance.

Typical Mechanical Properties

	SR 1 Hr @1275° F	
	CO_2	75%Ar/25% CO_2
Ultimate Tensile Strength (psi)	105,500	108,400
Yield Strength (psi)	95,000	96,700
Percent Elongation	18	18

Typical Deposit Composition

Wt%	C	Mn	P	S	Si	Cr	Mo
CO_2	0.06	0.70	0.010	0.010	0.50	2.24	1.01
75%Ar 25% CO_2	0.07	0.72	0.010	0.010	0.57	2.45	1.14

Recommended Welding Parameters*:

	Optimum			Range			
Diameter	Amperage	WFS	Voltage	Amperage	Voltage	WFS	ESO
.052”	275	400	28	150-375	20-32	140-550	½-1”
1/16”	330	330	29	150-400	22-34	130-500	½-1”
5/64”	390	250	29	280-430	26-33	140-300	1+/-1/4”
3/32”	429	180	29	300-550	28-37	110-270	1+/-1/4”

*With CO_2 shielding gas. For 75 Ar/25 CO_2 decrease voltage by 1 to 1.5 volts.

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