

## 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 ASTM A387 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	
	<u>CO<sub>2</sub></u>	<u>75%Ar/25% CO<sub>2</sub></u>
Ultimate Tensile Strength (psi)	105,500	108,400
Yield Strength (psi)	95,000	96,700
Percent Elongation	18	18

### Typical Deposit Composition

<u>Wt%</u>	<u>C</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Si</u>	<u>Cr</u>	<u>Mo</u>
CO <sub>2</sub>	0.06	0.70	0.010	0.010	0.50	2.24	1.01
75%Ar 25% CO <sub>2</sub>	0.07	0.72	0.010	0.010	0.57	2.45	1.14

### Recommended Welding Parameters\*:

<u>Diameter</u>	<u>Optimum</u>			<u>Range</u>			
	<u>Amperage</u>	<u>WFS</u>	<u>Voltage</u>	<u>Amperage</u>	<u>Voltage</u>	<u>WFS</u>	<u>ESO</u>
.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<sub>2</sub> shielding gas. For 75 Ar/25 CO<sub>2</sub> decrease voltage by 1 to 1.5 volts.

Rev 0 (09/15/2015)

**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.