

## Select 90C-B3

### Description:

**Select 90C-B3** is a low alloy steel, composite metal cored electrode for gas- shielded arc welding. This electrode is intended for single and multiple pass welding of 2 ¼ Cr - 1 Mo steels. Recommended shielding gases are mixtures of argon/oxygen, with a minimum of 95% argon, and argon/carbon dioxide, with a minimum of 75% argon. Dew points should be a minimum of -40° F, and flow rates must be maintained at 40-50 cfh.

### Classification:

- E90C-B3 per AWS A5.28, SFA 5.28.

### Characteristics:

**Select 90C-B3** is alloyed with approximately 2¼ % chromium and 1% molybdenum. This produces a high strength weld deposit which is generally post weld treated. Care must be taken with welds which are used in the as-welded condition. Classification of this electrode is, therefore, in the post weld heat treated condition. The composite nature of this electrode offers many advantages over solid wires of similar composition. Welder appeal is greatly enhanced, achieving a true spray with mixtures as "lean" as 75 - 80 % argon/balance carbon dioxide. Deposit chemistries are closely controlled and extremely consistent due to accurate distribution and monitoring of core ingredients. Composite metal cored electrodes provide faster travel speeds - hence, higher productivity, better fusion into base metal, less susceptibility to subsurface porosity, and greater tolerance for mill scale compared to solid electrodes. **Select 90C-B3**, like all **Select-Arc** products is manufactured using the newest technology, which ensures the highest standard of quality, consistency, and performance in the tubular wire industry.

### Applications:

**Select 90C-B3** is intended for welding the 2 ¼ Cr - 1 Mo steels used in high temperature and pressure piping, as well as pressure vessels. ASTM A387 - Grade 22 is a standard grade of steel used in many of these applications. This electrode may also be used to weld Cr-Mo steels to carbon steel. Careful control of preheat, interpass temperatures, and post heat treatment must be employed to avoid cracking problems. As this electrode is classified in the post weld heat treated condition, use in the as- welded condition may produce higher strength levels than desired.

### Typical Mechanical Properties:

	75% Ar/25% CO <sub>2</sub> SR 1 Hr. at 1275° F
Ultimate Tensile Strength (psi)	93,000
Yield Strength (psi)	78,500
Percent Elongation	22

### Typical Deposit Composition:

Wt%	C	Mn	Si	P	S	Cr	Mo
	.07	.91	.29	.009	.010	2.24	1.02

### Recommended Welding Parameters\*:

Diam. (in.)	Optimum			Range			ESO
	Amperage	WFS	Voltage	Amperage	WFS	Voltage	
.035	200	550	29-30	160-250	350-750	24-35	½"-¾"
.045	255	410	29-30	180-330	240-600	27-33	½"-1"
.052	300	350	29-30	220-460	220-620	25-35	½" -1"
1/16	360	300	29-30	240-520	175-500	26-37	¾" -1¼ "

\* With 75% Ar/25% CO<sub>2</sub>. For Ar/O<sub>2</sub> mixes lower voltage by 3 volts.

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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. Select-Arc disclaims any warranty of merchantability for any particular purpose with respect to its products.