

## Select 81-Ni1

### Description:

**Select 81-Ni1** is a low alloy steel, gas-shielded, flux cored wire intended for horizontal fillet and flat position welding of carbon and low alloy steels requiring 80,000 psi minimum tensile strength and good CVN toughness at subzero temperatures. Carbon dioxide is the recommended shielding gas, but Ar-25% CO<sub>2</sub> may also be used. Suggested flow rates are 35-50 cfh, with a dew point of at least -40° F essential. **Select 81-Ni1** can be used in both single and multiple pass applications.

### Classification:

- E80T1-Ni1C, E80T1-Ni1M per AWS A5.29, SFA 5.29.

### Characteristics:

**Select 81-Ni1** utilizes a rutile-based slag system, producing a smooth spray transfer, a thin coverage of easily removing slag, and a smooth rippled bead profile. The slag system is designed to provide weld deposit metallurgy that promotes excellent low temperature CVN toughness and low diffusible hydrogen levels. This combination of excellent mechanical properties, low hydrogen levels, and good bead geometry makes **Select 81-Ni1** a superb choice for weldments needing moderate tensile strength and good subzero CVN values.

### Applications:

**Select 81-Ni1** is the ideal selection for welding steels combining moderate tensile strength and excellent CVN toughness, such as ASTM A572 Gr60, A302, A575, and A734. These steels are used in mining machinery, offshore platforms, shipbuilding, and earthmoving equipment.

### Typical Mechanical Properties:

	<u>CO<sub>2</sub></u>	<u>Ar-25% CO<sub>2</sub></u>
Ultimate Tensile Strength (psi)	86,400	88,300
Yield Strength (psi)	73,700	77,100
Percent Elongation	27	26
CVN (ft-lb f) @-20°F	30	35

### Typical Deposit Composition:

<u>Shielding Gas</u>	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>P</u>	<u>S</u>	<u>Ni</u>
CO <sub>2</sub>	.05	1.10	.25	.010	.010	.98
Ar-25% CO <sub>2</sub>	.05	1.19	.27	.010	.010	.96

### 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>
1/16"	350	300	29	150-400	22-34
5/64"	390	250	29	280-430	26-33
3/32"	450	210	31	300-550	26-34

\* Listed parameters are for CO<sub>2</sub> shielding gas. For Ar-25% CO<sub>2</sub> reduce voltage by 1 to 1.5 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.