



## Select 820-Ni1

### Description:

**Select 820-Ni1** is a low alloy steel, gas-shielded, flux cored electrode intended for single and multiple pass welding, in all positions, of those carbon and low alloy steels requiring moderate tensile strength and good CVN toughness at subzero temperatures. This electrode performs well with 100% carbon dioxide shielding, as well as 75-80% argon/balance carbon dioxide. Suggested flow rates are 35-50 cfh, and a dew point of -40° F min. should be maintained.

### Classifications & Approvals:

- E81T1-Ni1CJ-H4, E81T1-Ni1MJ-H4 per AWS A5.29; SFA 5.29; MIL-81T1-Ni1C and MIL-81T1-Ni1M per MIL-E-24403/1
- ABS 4YSA, DNV 4 YMS, Lloyds 3S, 3YS - All (CO<sub>2</sub> and C25), MIL-81T1-Ni1C and MIL-81T1-Ni1M per MIL-E-24403/1

### Characteristics:

**Select 820-Ni1** is a premium electrode, producing a weld deposit with 1% nickel and exhibiting outstanding welder appeal. The arc transfer is an extremely smooth spray, with minimal spatter. **Select 820-Ni1** has specially formulated slag constituents which provide superb puddle control; the fast freezing characteristics facilitate welding in all positions. Mechanical properties are excellent, particularly the low temperature CVN toughness. Slag removal is very good and the bead profile is smooth, with minimum convexity.

### Applications:

**Select 820-Ni1** is an excellent selection for welding those steels requiring good low temperature CVN toughness and moderate (80,000 psi minimum) tensile strength, such as ASTM A203 Gr A, A352 Cr LC1 and LC2, A572, and A734. These steels are used in offshore platform fabrication, mining machinery, earthmoving equipment, and structural applications demanding excellent toughness.

### Typical Mechanical Properties:

	<u>CO<sub>2</sub></u>	<u>75/25</u>
Ultimate Tensile Strength (psi)	86,400	89,000
Yield Strength (psi)	73,700	80,000
Percent Elongation	27	24
CVN (ft-lb f) @-40°F	90	94
@-50°F	50	46

### Typical Deposit Composition:

<u>Wt%</u>	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>P</u>	<u>S</u>	<u>Ni</u>
CO <sub>2</sub>	.03	1.15	.41	.008	.008	0.91
75/25	.03	1.29	.50	.009	.009	0.90

### Recommended Welding Parameters\*:

Diameter	Position	Optimum			Range	
		Amperage	WFS	Voltage	Amperage	Voltage
5/64"	Flat	390	250	29	240-450	22-34
	Overhead	250	135	26	200-330	22-30
	Vertical up	250	135	26	200-330	22-30
1/16"	Flat	350	300	29	150-400	22-34
	Overhead	225	160	26	150-310	22-28
	Vertical up	225	160	25	150-280	22-27
.052"	Flat	300	360	28	100-330	19-32
	Overhead	225	245	26	150-310	21-28
	Vertical up	225	245	25	150-280	21-27
.045"	Flat	250	282	28	100-300	21-32
	Overhead	200	265	26	150-280	21-29
	Vertical up	200	265	25	100-230	21-28

\* With CO<sub>2</sub> shielding gas. For 75Ar/25CO<sub>2</sub> decrease 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.