



# Smoothcor 81T1-Ni1

## Classification:

E81T1-Ni1C, E81T1-Ni1M per AWS A5.29, SFA 5.29.

## Description:

**Smoothcor 81T1-Ni1** is a low alloy steel electrode for flux cored arc welding with external gas shielding. This electrode is intended for single and multiple pass welding, in all positions, on carbon and low alloy steels requiring good charpy v-notch toughness at subzero temperatures. Both 100 percent carbon dioxide and 75-80 percent argon – balance carbon dioxide can be utilized with **Smoothcor 81T1-Ni1**. A recommended gas flow rate of 35-50 cfh should be maintained, along with a minimum dew point of -40°F.

## Characteristics:

**Smoothcor 81T1-Ni1** is a flux cored electrode with a rutile based slag system, which exhibits a spray-like arc transfer and very little spatter. Proprietary core ingredients provide a fast freezing slag which facilitates welding in all positions. Slag volume is moderate and removal is quite easy. The use of 75-80 percent argon – balance carbon dioxide enhances the “fast freeze” nature of the slag, thus allowing slightly higher currents in all position welding. Modern manufacturing technology ensures the highest level of quality, and a very uniform distribution of core ingredients throughout this product. Feedability and welding performance also conform to the highest quality standards in the marketplace.

## Applications:

**Smoothcor 81T1-Ni1** is an ideal selection for welding steels requiring good tensile strength in excess of 80,000 psi and charpy v-notch toughness (20 ft-lb f) as low as -40°F. Typical steels welded with this electrode include ASTM A572, A302, A588, and A734. These steels are used in the fabrication of transmission poles, light poles, earthmoving and mining machinery, and offshore platforms.

## Typical Mechanical Properties:

	As Welded- All Weld Metal	
	<u>CO<sub>2</sub></u>	<u>75%Ar/25%CO<sub>2</sub></u>
Ultimate Tensile Strength (psi)	83,500	90,600
Yield Strength (psi)	76,900	76,100
Percent Elongation	24.0	23
Percent Reduction of Area	23.5	55
CVN (ft-lb f) @-20°F	30.0	53

## Typical Deposit Composition:

Wt%	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>P</u>	<u>S</u>	<u>Ni</u>
100% CO <sub>2</sub>	.04	1.04	.44	.010	.010	1.00
75Ar/25 CO <sub>2</sub>	.04	1.15	.47	.010	.010	.98



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## Typical Welding Parameters:

<u>Diameter</u>	<u>Position</u>	<u>Optimum</u>			<u>Range</u>	
		<u>Amperage</u>	<u>WFS</u>	<u>Voltage</u>	<u>Amperage</u>	<u>Voltage</u>
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

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.