



Pinnacle Alloys are products of SOWESCO

ISO 9001:2015 REGISTERED  
Certificate No.: 50040 & 50415

## E8018-C1 DATA SHEET

### Pinnacle Alloys E8018-C1

AWS CLASS E8018-C1 H4

#### CODE AND SPECIFICATION DATA:

AWS A5.5 ASME SFA 5.5; UNS W22018

#### DESCRIPTION:

Pinnacle Alloys E8018-C1 are low-hydrogen electrodes producing weld metal that nominally contains 2.5% Ni in steel. They have been designed to produce weld metal with increased strength without being air-hardenable or with increased notch toughness at temperatures as low as -75°F. For many applications, nickel steel weld metal can be used with or without PWHT. If PWHT is to be specified for a nickel steel weldment, the holding temperature should not exceed 1150°F since nickel steels can be embrittled at higher temperatures. This electrode provides a stable arc that is easy to control. It has quick and easy slag removal, which reduces clean up time. The low spatter level improves weld bead appearance and lends itself to higher deposition. Pinnacle Alloys E8018-C1 is primarily used for shipbuilding, piping, and storage tanks.

**TYPE OF CURRENT:** Direct Current Electrode Positive (DCEP) or AC

**DIAMETERS:** 3/32", 1/8", 5/32", 3/16"

**STORAGE & RECONDITIONING:** After opening, store in an oven controlled at 220°F to 350°F to ensure a low hydrogen weld deposit. If the electrode has been exposed to the atmosphere for extended periods of time, place in 250°F oven and slowly increase temperature to 600°F; bake for one hour at 600°F.

**WELDING POSITIONS:** All positions

3/16" is recommended for use in flat and horizontal positions only



**TYPICAL DIFFUSIBLE HYDROGEN BY GAS CHROMATOGRAPHY:** 2.9 ml/100g



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#### TYPICAL DEPOSIT COMPOSITION:

|                | AWS Spec  | Weld Metal Analysis (%) |
|----------------|-----------|-------------------------|
| Carbon (C)     | 0.12      | 0.04                    |
| Manganese (Mn) | 1.25      | 1.04                    |
| Nickel (Ni)    | 2.00-2.75 | 2.44                    |
| Phosphorus (P) | 0.03      | 0.01                    |
| Silicon (Si)   | 0.80      | 0.44                    |
| Sulfur (S)     | 0.03      | 0.02                    |

NOTE: Single values are maximums.

#### TYPICAL MECHANICAL PROPERTIES:

|                           | AWS Spec (min)                    | SR 1 HR. @ 1125°F                 |
|---------------------------|-----------------------------------|-----------------------------------|
| Ultimate Tensile Strength | 80,000 psi (550 MPa)              | 93,000 psi (643 MPa)              |
| Yield Strength            | 67,000 psi (460 MPa)              | 79,000 psi (543 MPa)              |
| Percent Elongation in 2"  | 19%                               | 26%                               |
| CVN @ -75°F (-60°C)       | 20 ft•lb <sub>f</sub> (27 Joules) | 59 ft•lb <sub>f</sub> (80 Joules) |

#### TYPICAL WELDING PARAMETERS:

| Diameter | Type of Current   | Amperage   | Deposition Rate (lbs/hr) | Amperage Range | Voltage Range |
|----------|-------------------|------------|--------------------------|----------------|---------------|
| 3/32"    | <b>DCEP or AC</b> | <b>100</b> | <b>2.0</b>               | 70-110         | Variable      |
| 1/8"     | <b>DCEP or AC</b> | <b>135</b> | <b>3.1</b>               | 90-160         | Variable      |
| 5/32"    | <b>DCEP or AC</b> | <b>220</b> | <b>3.9</b>               | 130-220        | Variable      |
| 3/16"    | <b>DCEP or AC</b> | <b>250</b> | <b>5.7</b>               | 200-300        | Variable      |

**NOTE:** Optimum conditions are in boldface type. For out of position welding, decrease amperage by 15%. These values were calculated using optimum parameters and DCEP polarity. Allowance made for 2" stub loss. Maintaining a proper welding procedure, including pre-heat and interpass temperatures, may be critical depending on the type and thickness of steel being welded.

**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 the use in the field. The manufacturer disclaims any warranty of merchantability of fitness for any particular purpose with respect to its products.

**CAUTION:** Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standards A49.1, "Safety in Welding and Cutting," published by the American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33126: OSHA Safety and Health Standards 29 CRF 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210.

Pinnacle Alloys SDS sheets may be obtained on the website below.

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