



## ENiCrFe-2 DATA SHEET

**Pinnacle Alloys ENiCrFe-2 (A)**

AWS CLASS ENiCrFe-2

**CODE AND SPECIFICATION DATA:**

AWS A5.11 ASME SFA 5.11; UNS W86133

**DESCRIPTION:**

Pinnacle Alloys ENiCrFe-2 has a nominal composition (wt.-%) of 70 Ni, 15 Cr, 8 Fe, 2 Mn, 2 Nb + Ta, 1.5 Mo. Electrodes of this classification are used for welding nickel-chromium-iron alloys, 9% nickel steel, and a variety of dissimilar metal joints (involving carbon steel, stainless steel, nickel, and nickel-base alloys). The base metals can be wrought or cast (welding grade), or both. The electrodes may be used for applications at temperatures ranging from cryogenic to around 1800°F. However, for temperatures above 1500°F, weld metal produced by ENiCrFe-2 does not exhibit optimum oxidation resistance and strength. Typical specifications for the nickel-chromium-iron base metal are ASTM B 163, B 166, B 167, and B 168, all of which have a UNS Number of N06600. Pinnacle Alloys ENiCrFe-2 provides excellent results over a wide range of general fabrication welding requirements, especially those in harsh service environments.

**TYPE OF CURRENT:** Direct Current Electrode Positive (DCEP)**DIAMETERS:** 3/32", 1/8", 5/32", 3/16"**WELDING POSITIONS:** All positions

5/32" &amp; 3/16" recommended for use in flat &amp; horizontal positions only



**AN ISO 9001:2015 COMPANY**  
**CERTIFICATE NO.: C755336****TYPICAL DEPOSIT COMPOSITION:**

|                              | <b>AWS Spec</b> | <b>Weld Metal Analysis (%)</b> |
|------------------------------|-----------------|--------------------------------|
| Carbon (C)                   | 0.10            | 0.022                          |
| Chromium (Cr)                | 13.0-17.0       | 15.2                           |
| Cobalt (Co)                  | 0.12*           | 0.034                          |
| Copper (Cu)                  | 0.50            | <0.001                         |
| Iron (Fe)                    | 12.0            | 6.70                           |
| Manganese (Mn)               | 1.0-3.5         | 1.80                           |
| Molybdenum (Mo)              | 8.0-10.0        | 0.8                            |
| Nickel (Ni)                  | 62.0 min        | 73.9                           |
| Phosphorus (P)               | 0.03            | 0.001                          |
| Silicon (Si)                 | 0.75            | 0.24                           |
| Sulfur (S)                   | 0.02            | 0.008                          |
| Niobium (Nb) + Tantalum (Ta) | 0.5-2.5*        | 1.10                           |

NOTE: Single values are maximums.

\*Additional customer requirements may apply.

**TYPICAL MECHANICAL PROPERTIES:**

|                           | <b>AWS Spec (min)</b> | <b>As Welded</b>     |
|---------------------------|-----------------------|----------------------|
| Ultimate Tensile Strength | 80,000 psi (550 MPa)  | 85,000 psi (590 MPa) |
| Percent Elongation in 2"  | 30%                   | 40%                  |

**TYPICAL WELDING PARAMETERS:**

| <b>Diameter</b> | <b>Type of Current</b> | <b>Amperage Range</b> |                        | <b>Voltage Range</b> |
|-----------------|------------------------|-----------------------|------------------------|----------------------|
|                 |                        | <b>Flat</b>           | <b>Out of Position</b> |                      |
| 3/32"           | DCEP                   | 70-90                 | 65-80                  | 20-23                |
| 1/8"            | DCEP                   | 80-110                | 75-95                  | 21-24                |
| 5/32"           | DCEP                   | 120-160               | Not recommended        | 22-25                |
| 3/16"           | DCEP                   | 170-190               | Not recommended        | 23-26                |

**NOTE:** Maintaining a proper welding procedure, including pre-heat and interpass temperatures, may be critical depending on the type and thickness of material 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 CFR 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.

[www.pinnaclealloys.com](http://www.pinnaclealloys.com)

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