



ENiCrFe-3 DATA SHEET

Pinnacle Alloys ENiCrFe-3 (182)

AWS CLASS ENiCrFe-3

CODE AND SPECIFICATION DATA:

AWS A5.11 ASME SFA 5.11; UNS W86182

DESCRIPTION:

Pinnacle Alloys ENiCrFe-3 has a nominal composition (wt.-%) of 65 Ni, 15 Cr, 8 Fe, 7.5 Mn, 2 Nb + Ta. Electrodes of this classification are used for welding nickel-chromium-iron alloys, for welding the clad side of joints on steel clad with nickel-chromium-iron alloy and for surfacing steel with nickel-chromium-iron weld metal, when comparatively high manganese contents are not detrimental. The electrodes may be used for applications at temperatures ranging from cryogenic to around 900°F. 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.

These electrodes can also be used for welding steel to other nickel-base alloys. Fewer fissures are permitted on the bend test of this weld metal than for the weld metal of the ENiCrFe-1 and ENiCrFe-2 classifications. Pinnacle Alloys ENiCrFe-3 is designed for welding in harsh, corrosive environments, such as desalination plants, petrochemical facilities and power generation plants, and in temperature critical conditions, such as furnace equipment and pipe work.

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

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



**TYPICAL DEPOSIT COMPOSITION:**

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.10	0.04
Chromium (Cr)	13.0-17.0	15.6
Cobalt (Co)	0.12*	0.03
Copper (Cu)	0.50	0.007
Iron (Fe)	10.0	6.70
Manganese (Mn)	5.0-9.5	6.00
Nickel (Ni)	59.0 min	68.1
Phosphorus (P)	0.03	0.001
Silicon (Si)	1.00	0.80
Sulfur (S)	0.015	0.005
Titanium (Ti)	1.00	0.60
Niobium (Nb) + Tantalum (Ta)	1.0-2.5*	1.70

NOTE: Single values are maximums.

*Additional customer requirements may apply.

TYPICAL MECHANICAL PROPERTIES:

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	80,000 psi (550 MPa)	98,000 psi (680 MPa)
Percent Elongation in 2"	30%	44%

TYPICAL WELDING PARAMETERS:

Diameter	Type of Current	Amperage Range		Voltage Range
		Flat	Out of Position	
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

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