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ISO 9001:2008 REGISTERED
Certificate No.: 50040 & 50415

ENiCr3T1-1/4 DATA SHEET

Pinnacle Alloys ENiCr3T1-1/4

AWS CLASS ENiCr3T1-1, ENiCr3T1-4

CODE AND SPECIFICATION DATA:

AWS A5.34 ASME SFA 5.34; UNS W86082

DESCRIPTION:

Pinnacle Alloys ENiCr3T1-1/4 has a nominal composition (wt.-%) of 72 Ni, 20 Cr, 3 Mn, 2.5 Nb + Ta. Electrodes of this classification are used for welding nickel-chromium-iron alloys, for dissimilar welding of nickel-based alloys, for the clad side of joints in steel clad with nickel-chromium alloys, for surfacing steel with nickel-chromium-iron weld metal, and for joining carbon and low-alloy steels to nickel-based alloys and to austenitic stainless steels. Typical specifications for the nickel-chromium-iron base metals are ASTM B163, B166, B167, and B168, all of which have a UNS Number of N06600. Pinnacle Alloys ENiCr3T1-1/4 has excellent resistance to pitting and stress corrosion cracking in chloride contaminated environments, making it ideal for welding in desalination. It is also suitable for welding applications spanning a wide range of temperatures, from cryogenic to elevated, such as piping, furnace equipment, petrochemical facilities, and power generation plants. It delivers superb performance characteristics in all positions, has little spatter, and easy-to-remove slag. Minimal weaving is required to achieve a flat, well-washed bead.

TYPE OF CURRENT: Direct Current Electrode Positive (DCEP)

DIAMETERS: .045", 1/16"

SHIELDING GAS: 100% CO₂, 75-80% Ar/ balance CO₂, 35-50 cfh

WELDING POSITIONS: All positions



TYPICAL MECHANICAL PROPERTIES:

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	80,000 psi (550 MPa)	95,000 psi (650 MPa)
Yield Strength	Not required	54,000 psi (370 MPa)
Percent Elongation in 2"	25%	43%

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TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.10	0.03
Chromium (Cr)	18.0-22.0	20.2
Copper (Cu)	0.50	0.01
Iron (Fe)	3.00	0.17
Manganese (Mn)	2.50-3.50	2.73
Nickel (Ni)	67.0 min	71.0
Phosphorus (P)	0.03	0.002
Silicon (Si)	0.50	0.29
Sulfur (S)	0.015	0.001
Titanium (Ti)	0.75	0.37
Niobium (Nb) + Tantalum (Ta)	2.0-3.0*	2.39

NOTE: Single values are maximums.

*Additional customer requirements may apply.

TYPICAL WELDING PARAMETERS:

Diameter	Position	Optimum			Amperage Range	Voltage Range
		Amperage	Voltage	WFS (ipm)		
.045"	Flat	180	29	400	125-200	27-31
	Out of Position	140	28	300	120-165	27-29
1/16"	Flat	250	30	300	130-300	25-32
	Out of Position	200	28	200	140-240	25-29

Note: Parameters and properties reflect CO₂ shielding gas - reduce by 2 volts when using 75-80% Ar/ balance CO₂. 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.

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