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

ER80S-Ni2 DATA SHEET

Pinnacle Alloys ER80S-Ni2

AWS CLASS ER80S-Ni2

CODE AND SPECIFICATION DATA:

AWS A5.28 ASME SFA 5.28; UNS K21240

DESCRIPTION:

Pinnacle Alloys ER80S-Ni2 has a nominal composition (wt-%) of **2.25 Ni**. Filler metals of this classification are used to weld 2 to 2½ Ni steels and other materials requiring good toughness at temperatures as low as -80°F, such as ASTM A 203 Gr A & B, A 350 Gr LF5 Class 1 & 2, and A 352 Gr LC2. Preheat and interpass temperatures are typically kept between 275-325°F. This filler metal is used in both the as welded and PWHT condition, typically around 1150°F for one hour.

DIAMETERS: .035", .045", 1/16", 3/32", 1/8", 5/32"

WELDING POSITIONS: All positions

GMAW spray transfer limited to flat and horizontal fillet positions only



TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.12	0.082
Copper (Cu)	0.35	0.154
Manganese (Mn)	1.25	1.072
Nickel (Ni)	2.00-2.75	2.250
Phosphorus (P)	0.025	0.009
Silicon (Si)	0.40-0.80	0.538
Sulfur (S)	0.025	0.008

NOTE: Single values are maximums.



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TYPICAL MECHANICAL PROPERTIES:

	AWS Spec (min)	SR 1 HR @ 1150°F (GMAW)
Ultimate Tensile Strength	80,000 psi (550 MPa)	81,200 psi (560 MPa)
Yield Strength	68,000 psi (470 MPa)	69,600 psi (480 MPa)
Percent Elongation in 2"	24%	26%
CVN @ -80°F (-60°C)	20 ft•lb _f (27 Joules)	52 ft•lb _f (70 Joules)
CVN @ -40°F (-40°C)	Not required	66 ft•lb _f (90 Joules)

	AWS Spec (min)	As Welded (GMAW)	As Welded (GTAW)
Ultimate Tensile Strength	Not required	82,600 psi (570 MPa)	89,900 psi (620 MPa)
Yield Strength	Not required	74,000 psi (510 MPa)	76,800 psi (530 MPa)
Percent Elongation in 2"	Not required	23%	26%
CVN @ -80°F (-60°C)	Not required	37 ft•lb _f (50 Joules)	37 ft•lb _f (50 Joules)
CVN @ -40°F (-40°C)	Not required	52 ft•lb _f (70 Joules)	59 ft•lb _f (80 Joules)
CVN @ -4°F (-20°C)	Not required	--	96 ft•lb _f (130 Joules)

TYPICAL WELDING PARAMETERS:

	Diameter	Amperage	Volts	Shielding Gas
GTAW	3/32"	70-210	9-16	100% Ar
	1/8"	90-280	10-19	
	5/32"	120-320	10-19	
GMAW Spray Transfer	.035"	200-260	26-32	98% Ar/ 2% O ₂
	.045"	240-360	26-34	
	1/16"	270-450	27-38	

NOTE: 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 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.