



Pinnacle Alloys are products of SOWESCO

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

## ER410NiMo DATA SHEET

### Pinnacle Alloys ER410NiMo

AWS CLASS ER410NiMo

#### CODE AND SPECIFICATION DATA:

AWS A5.9 ASME SFA 5.9; UNS S41086

#### DESCRIPTION:

Pinnacle Alloys ER410NiMo has a nominal composition (wt.-%) of 12 Cr, 4.5 Ni, 0.55 Mo. It is primarily designed for welding ASTM CA6NM castings or similar material, as well as light-gauge 410, 410S, and 405 base metals. Filler metals of this classification are modified to contain less chromium and more nickel to eliminate ferrite in the microstructure, as it has a deleterious effect on mechanical properties. Final PWHT should not exceed 1150°F, as higher temperatures may result in rehardening due to untempered martensite in the microstructure after cooling to room temperature. Pinnacle Alloys ER410NiMo typical applications include the manufacturing of turbines, valve components, gears, propeller shafts, and high pressure piping. This material is used offshore and in the power generation and hydropower industries.

**DIAMETERS:** .030", .035", .045", 1/16", 3/32", 1/8", 5/32"

**WELDING POSITIONS:** GTAW & GMAW: All positions



#### TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.06	0.017
Chromium (Cr)	11.0-12.5	12.19
Copper (Cu)	0.75	0.09
Manganese (Mn)	0.6	0.55
Molybdenum (Mo)	0.4-0.7	0.43
Nickel (Ni)	4.0-5.0	4.57
Nitrogen (N)	N.S.*	0.014
Phosphorus (P)	0.03	0.020
Silicon (Si)	0.5	0.39
Sulfur (S)	0.03	0.002

\*N.S. means Not Specified.

NOTE: Single values are maximums.

SOWESCO, LLC

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#### FERRITE NUMBER AND PITTING RESISTANCE EQUIVALENT NUMBER:

To obtain Ferrite Numbers or PRE<sub>N</sub>, please contact SOWESCO technical support at the number below.

#### TYPICAL WELDING PARAMETERS:

	Diameter	Amperage	Volts	Shielding Gas
<b>GTAW</b>	1/16"	80-110		100% Ar
	3/32"	90-130		
	1/8"	120-175		
	5/32"	150-220		
<b>GMAW</b> Spray Transfer	.030"	130-200	23-27	98% Ar/ 2% O <sub>2</sub> (35 cfh)
	.035"	150-225	23-26	
	.045"	200-325	24-28	
	1/16"	300-350	24-27	
<b>GMAW</b> Short-Circuit	.030"	50-150	14-20	90% He/ 7½% Ar/ 2½% CO <sub>2</sub> (25 cfh)
	.035"	60-200	14-22	
	.045"	75-225	15-23	
	1/16"	100-250	16-23	
<b>SAW</b>	3/32"	275-350	28-30	Suitable Flux
	1/8"	350-450	29-32	

**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.