Pinnacle Alloys are products of SOWESCO

ISO 9001:2015 REGISTERED
Certificate No.: 50040 & 50415

ER309 DATA SHEET

Pinnacle Alloys ER309
AWS CLASS ER309
CODE AND SPECIFICATION DATA:
AWS A5.9 ASME SFA 5.9; UNS S30980

DESCRIPTION:
Pinnacle Alloys ER309 has a nominal composition (wt.-%) of 24 Cr, 13 Ni. Filler metals of this classification are commonly used for welding similar alloys in the wrought or cast form. They are also used to weld Type 304 and similar base metals where severe corrosion conditions exist requiring higher alloy weld metal. They are used in dissimilar metal welds, such as joining Type 304 to carbon steel, welding the clad side of Type 304 clad welds, and applying stainless steel sheet linings to carbon steel shells. This filler metal is typically supplied with carbon contents between 0.04-0.12, making it suitable for high strength, corrosion resistant applications at higher temperatures. This material is resistant to scaling up to 1830°F. Pinnacle Alloys ER309 is well suited for applications in the petrochemical and ceramic industries; high pressure piping and tubing; and pressure vessel fabrication.

DIAMETERS: .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)	0.12	0.076
Chromium (Cr)	23.0-25.0	23.58
Copper (Cu)	0.75	0.06
Manganese (Mn)	1.00-2.50	1.70
Molybdenum (Mo)	0.75	0.06
Nickel (Ni)	12.0-14.0	13.41
Nitrogen (N)	N.S.*	0.053
Phosphorus (P)	0.03	0.016
Silicon (Si)	0.30-0.65	0.40
Sulfur (S)	0.03	0.003

*N.S. means Not Specified.
NOTE: Single values are maximums.

SOWESCO, LLC   www.pinnaclealloys.com
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FERRITE NUMBER AND PITTING RESISTANCE EQUIVALENT NUMBER:

To obtain Ferrite Numbers or PRE_N, please contact SOWESCO technical support at the number below.

TYPICAL MECHANICAL PROPERTIES:

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	Not required	87,000 psi (600 MPa)
Percent Elongation in 2"	Not required	43%

TYPICAL WELDING PARAMETERS:

	Diameter	Amperage	Volts	Shielding Gas
GTAW	1/16"	80-110		100% Ar
	3/32"	90-130		
	1/8"	120-175		
	5/32"	150-220		
GMAW Spray Transfer	.030"	130-200	23-27	98% Ar/ 2% O_2 (35 cfh)
	.035"	150-225	23-26	
	.045"	200-325	24-28	
	1/16"	300-350	24-27	
GMAW Short-Circuit	.030"	50-150	14-20	90% He/ 7½% Ar/ 2½% CO_2 (25 cfh)
	.035"	60-200	14-22	
	.045"	75-225	15-23	
	1/16"	100-250	16-23	
SAW	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 CRF 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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