AN ISO 9001:2015 COMPANY
CERTIFICATE NO.: C755336

ER309/309L DATA SHEET

Pinnacle Alloys ER309/309L
AWS CLASS ER309, ER309L
CODE AND SPECIFICATION DATA:
AWS A5.9 ASME SFA 5.9; UNS S30980, S30983

DESCRIPTION:
Pinnacle Alloys ER309/309L has a nominal composition (wt.-%) of 24 Cr, 13 Ni, with a carbon content restricted to 0.03 maximum. This low carbon material reduces the possibility of intergranular carbide precipitation. This increases the resistance to intergranular corrosion without the use of stabilizers, such as niobium or titanium. Strength of this low-carbon alloy however, is less than that of the niobium-stabilized alloys or Type 309 at elevated temperatures. 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. This grade may be used for joining and overlay of stainless steels similar in composition, such as AISI 309 castings. Pinnacle Alloys ER309/309L is well suited for applications in industrial and furnace boiler parts, annealing chambers, heat exchangers, and fused salt treatment installations.

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)	0.03	0.020
Chromium (Cr)	23.0-25.0	23.35
Copper (Cu)	0.75	0.04
Manganese (Mn)	1.00-2.50	1.97
Molybdenum (Mo)	0.75	0.04
Nickel (Ni)	12.0-14.0	13.77
Nitrogen (N)	N.S.*	0.077
Phosphorus (P)	0.03	0.020
Silicon (Si)	0.30-0.65	0.36
Sulfur (S)	0.03	0.003

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

SOWESCO, LLC www.pinnaclealloys.com
9384 Wallisville Road • Houston, Texas 77013 • **1-800-856-9353** • (713) 688-9353 • Fax (713) 688-6985
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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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