



ISO 9001:2015 REGISTERED
Certificate No.: C755336

ER409Nb DATA SHEET

Pinnacle Alloys ER409Nb

AWS CLASS ER409Nb

CODE AND SPECIFICATION DATA:

AWS A5.9 ASME SFA 5.9; UNS S40940

DESCRIPTION:

Pinnacle Alloys ER409Nb has a nominal composition (wt.-%) of 12 Cr, with Nb added to form niobium carbides (NbC), preventing chromium carbides (Cr_3C_2), thus improving corrosion resistance. This material has a ferritic microstructure and may be used to join matching or dissimilar base metals. Pinnacle Alloys ER409Nb typical applications include exhaust system components such as manifolds, mufflers, catalytic converters, and tubing.

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)	0.08	0.02
Chromium (Cr)	10.5-13.5	11.55
Copper (Cu)	0.75	0.054
Manganese (Mn)	0.80	0.465
Molybdenum (Mo)	0.50	0.023
Nickel (Ni)	0.60	0.345
Phosphorus (P)	0.04	0.0202
Silicon (Si)	1.00	0.443
Sulfur (S)	0.03	0.0013
Niobium (Nb) + Tantalum (Ta)	(10 x C) min – 0.75 max	0.351

NOTE: Single values are maximums.



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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	67,000 psi (460 MPa)
Percent Elongation in 2"	Not required	26%

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 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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