



Pinnacle Alloys are products of SOWESCO

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

ER2209 DATA SHEET

Pinnacle Alloys ER2209

AWS CLASS ER2209

CODE AND SPECIFICATION DATA:

AWS A5.9 ASME SFA 5.9; UNS S39209

DESCRIPTION:

Pinnacle Alloys ER2209 has a nominal composition (wt.-%) of **22.5 Cr, 8.5 Ni, 3 Mo, 0.15 N**. It is an austenitic-ferritic duplex stainless steel, characterized by a Pitting Resistance Equivalent Number (PRE_N) of at least 35, allowing the weld metal to be called a “duplex stainless steel.” This number is a semi-quantitative indicator of resistance to pitting in aqueous chloride-containing environments. Filler metal of this classification is primarily used to weld duplex stainless steels which contain approximately 22% chromium, such as UNS S31803 and S32205. They are also used for lean duplex stainless steel, such as UNS S32101 and S32304. Deposits of this alloy have “duplex” microstructures consisting of an austenite-ferrite matrix. These stainless steels are characterized by high tensile strength, resistance to corrosion cracking especially in environments containing hydrogen sulfide and chlorides, and improved resistance to pitting. Pinnacle Alloys ER2209 is well suited for applications with service temperatures up to 480°F and down to -58°F.

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	0.014
Chromium (Cr)	21.5-23.5	23.06
Copper (Cu)	0.75	0.14
Manganese (Mn)	0.5-2.0	1.47
Molybdenum (Mo)	2.5-3.5	3.37
Nickel (Ni)	7.5-9.5	8.60
Nitrogen (N)	0.08-0.20	0.15
Phosphorus (P)	0.03	0.015
Silicon (Si)	0.90	0.52
Sulfur (S)	0.03	0.001

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
 2602 S. 50th Avenue • Phoenix, Arizona 85043 • **1-866-442-9353** • (602) 442-9353 • Fax (602) 442-9354



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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	109,000 psi (750 MPa)
Percent Elongation in 2"	Not required	25%

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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