



Pinnacle Alloys are products of SOWESCO

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

## E2209-16 DATA SHEET

### Pinnacle Alloys E2209-16

AWS CLASS E2209-16

#### CODE AND SPECIFICATION DATA:

AWS A5.4 ASME SFA 5.4; UNS W39209

#### DESCRIPTION:

Pinnacle Alloys E2209-16 has a nominal composition (wt.-%) of **22.5 Cr, 9.5 Ni, 3 Mo, 0.15 N**. Electrodes of this composition are used primarily to weld duplex stainless steel, such as UNS S31803 and S32205. They are also used for lean duplex stainless steel, such as UNS S32101 and S32304. Weld metal deposited by these electrodes has “duplex” microstructure consisting of an austenite-ferrite matrix. Weld metal deposited by E2209 electrodes combines increased tensile strength with improved resistance to pitting corrosive attack and to stress corrosion cracking, especially in environments containing hydrogen sulfide and chlorides. If postweld annealing is required, this weld metal will require a higher annealing temperature than that required by the duplex base metal. Pinnacle Alloys E2209-16 is designed for applications with service temperatures up to 480°F (250°C) and down to -58°F (-50°C).

**TYPE OF CURRENT:** Direct Current Electrode Positive (DCEP) or AC

**DIAMETERS:** 3/32”, 1/8”, 5/32”, 3/16”

**WELDING POSITIONS:** All positions

3/16” is recommended for use in flat and horizontal positions only



#### TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.04	0.03
Chromium (Cr)	21.5-23.5	23.0
Copper (Cu)	0.75	0.079
Manganese (Mn)	0.5-2.0	1.20
Molybdenum (Mo)	2.5-3.5	3.20
Nickel (Ni)	8.5-10.5	9.60
Nitrogen (N)	0.08-0.20	0.17
Phosphorus (P)	0.04	0.02
Silicon (Si)	1.00	0.67
Sulfur (S)	0.03	0.002

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 MECHANICAL PROPERTIES:

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	100,000 psi (690 MPa)	109,000 psi (750 MPa)
Percent Elongation in 2"	20%	25%

#### TYPICAL WELDING PARAMETERS:

Diameter	Type of Current	Amperage Range		Voltage Range
		Flat	Out of Position	
3/32"	DCEP or AC	70-90	65-80	20-23
1/8"	DCEP or AC	80-110	80-100	21-24
5/32"	DCEP or AC	120-160	100-120	22-25
3/16"	DCEP or AC	155-210	Not recommended	23-26

**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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