



PREMIER 309LT-AP DATA SHEET

Pinnacle Alloys Premier 309LT-AP

AWS CLASS E309LT1-1, E309LT1-4

CODE AND SPECIFICATION DATA:

AWS A5.22 ASME SFA 5.22; UNS W30935

DESCRIPTION:

Pinnacle Alloys Premier E309LT1-1/4 has a nominal composition (wt.-%) of 23.5 Cr, 13 Ni, with a maximum carbon content of 0.04. With this low carbon content, it is possible to obtain resistance to intergranular corrosion due to carbide precipitation without the use of stabilizers such as niobium and titanium. A primary application of this alloy is the first layer cladding of carbon steel when no niobium additions are required. Pinnacle Alloys Premier E309LT1-1/4 is utilized in welding refinery and chemical processing equipment, as well as furnace and auto exhaust parts. It welds Type 309 stainless steel, joins carbon and low alloy steels, welds 304 clad sheets, and the first layer cladding of carbon steel. It delivers superb performance characteristics in all positions, has little spatter, and easy-to-remove slag. Minimal weaving is required to achieve a flat, well-washed bead.

TYPE OF CURRENT: Direct Current Electrode Positive (DCEP)**DIAMETERS:** .035", .045", 1/16"**SHIELDING GAS:** 100% CO₂, 75-80% Ar/ balance CO₂, 35-50 cfh**WELDING POSITIONS:** All positions

1/16" is recommended for use in flat and horizontal positions only

**FERRITE NUMBER AND PITTING RESISTANCE EQUIVALENT NUMBER:**

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



TYPICAL DEPOSIT COMPOSITION (CO₂):

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.04	0.027
Chromium (Cr)	22.0-25.0	23.36
Copper (Cu)	0.75	0.125
Manganese (Mn)	0.5-2.5	1.27
Molybdenum (Mo)	0.75	0.130
Nickel (Ni)	12.0-14.0	12.99
Nitrogen (N)	N.S.*	0.016
Phosphorus (P)	0.04	0.021
Silicon (Si)	1.00	0.74
Sulfur (S)	0.03	0.006

*N.S. means Not Specified.

NOTE: Single values are maximums.

TYPICAL MECHANICAL PROPERTIES (CO₂):

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	75,000 psi (520 MPa)	78,320 psi (540 MPa)
Percent Elongation in 2"	30%	41%
CVN @ -4°F (-20°C)	N.S.	36 ft•lb _f (49 Joules)
CVN @ -76°F (-60°C)	N.S.	33 ft•lb _f (46 Joules)

TYPICAL DEPOSIT COMPOSITION (Ar + 20% CO₂):

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.04	0.026
Chromium (Cr)	22.0-25.0	23.52
Copper (Cu)	0.75	0.123
Manganese (Mn)	0.5-2.5	1.43
Molybdenum (Mo)	0.75	0.130
Nickel (Ni)	12.0-14.0	12.82
Phosphorus (P)	0.04	0.021
Silicon (Si)	1.00	0.86
Sulfur (S)	0.03	0.006

NOTE: Single values are maximums.

TYPICAL MECHANICAL PROPERTIES (Ar + 20% CO₂):

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	75,000 psi (520 MPa)	80,496 psi (555 MPa)
Percent Elongation in 2"	30%	37%
CVN @ -4°F (-20°C)	N.S.	33 ft•lb _f (46 Joules)
CVN @ -76°F (-60°C)	N.S.	29 ft•lb _f (40 Joules)

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**TYPICAL WELDING PARAMETERS:**

Diameter	WFS (ipm)	Amperage	Volts	ESO (in.)	Deposition Rate (lbs/hr)
.035"	300	110	25	5/8-3/4"	3.3
	500	150	26	5/8-3/4"	5.4
	600	165	27	5/8-3/4"	6.3
	700	175	28	5/8-3/4"	7.7
.045"	250	130	24	5/8-3/4"	5.4
	300	160	26	5/8-3/4"	6.3
	425	200	28	5/8-3/4"	9.2
	780	270	34	5/8-3/4"	16.2
1/16"	150	170	25	3/4-1"	5.4
	195	215	27	3/4-1"	7.0
	240	250	28	3/4-1"	8.6
	320	305	29	3/4-1"	11.5

Note: Optimum conditions are in boldface type. Parameters reflect CO₂ shielding gas - reduce by 2 volts when using 75-80% Ar/ balance CO₂. 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.