AN ISO 9001:2015 COMPANY
CERTIFICATE NO.: C755336

E81T1-B8M DATA SHEET

Pinnacle Alloys E81T1-B8M
AWS CLASS E81T1-B8M
CODE AND SPECIFICATION DATA:
AWS A5.29 ASME SFA 5.29; UNS W50431

DESCRIPTION:
Pinnacle Alloys E81T1-B8M has a nominal composition (wt-%) of 9 Cr, 1 Mo. Filler metals of this classification are used to weld materials of similar composition, usually in the form of pipe or tubing, such as ASTM A 335 Gr P9, A 213 Gr T9, and A 182 Gr F9. The alloy is air-hardening material and, therefore, when welding with this filler metal, preheat and post weld heat treatment are required. These creep resistant steels are typically used in chemical industries for heat exchangers, boilers, piping and pressure vessels at service temperatures up to 1100°F. Preheat and interpass temperatures are typically kept between 300-500°F. This filler metal is used in the PWHT condition, typically around 1375°F for two hours.

DIAMETERS: .045", .052", 1/16"

WELDING POSITIONS: All positions

TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
		75% Ar/ 25% CO_2
Carbon (C)	0.05-0.12	0.09
Chromium (Cr)	8.00-10.50	9.30
Copper (Cu)	0.50	0.07
Manganese (Mn)	1.25	0.50
Molybdenum (Mo)	0.85-1.20	1.05
Nickel (Ni)	0.40	0.03
Phosphorus (P)	0.04	0.01
Silicon (Si)	1.00	0.35
Sulfur (S)	0.03	0.01

NOTE: Single values are maximums.

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TYPICAL MECHANICAL PROPERTIES:

75% Ar/ 25% CO_2 Shielding Gas	AWS Spec (min)	SR 2 HR @ 1375°F
Ultimate Tensile Strength	80,000-100,000 psi (550-690 MPa)	96,300 psi (665 MPa)
Yield Strength	68,000 psi (470 MPa)	78,000 psi (535 MPa)
Percent Elongation in 2”	19%	20%

TYPICAL WELDING PARAMETERS:

Diameter	Position	Optimum			Amperage Range	Voltage Range
		Amperage	Voltage	WFS (ipm)		
.045”	Flat	250	27	450	100-300	20-31
	Overhead	200	25	300	150-280	20-28
	Vertical Up	200	24	300	100-230	20-27
.052”	Flat	300	27	440	100-330	18-31
	Overhead	200	25	245	150-310	20-27
	Vertical Up	200	24	245	150-280	20-26
1/16”	Flat	350	28	350	150-400	21-33
	Overhead	225	25	170	150-310	21-27
	Vertical Up	225	24	170	150-280	21-26

NOTE: Parameters reflect using 75-80% Ar/ balance CO_2 shielding gas. Maintaining a proper welding procedure, including pre-heat and interpass temperatures, may be critical depending on the type and thickness of steel 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.