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

E8018-B3L (E9018-B3L) DATA SHEET

Pinnacle Alloys E8018-B3L (E9018-B3L)

AWS CLASS E8018-B3L H4R (E9018-B3L H4R)

CODE AND SPECIFICATION DATA:

AWS A5.5 ASME SFA 5.5: 2014 (1981); UNS W53118

DESCRIPTION:

Pinnacle Alloys E8018-B3L (E9018-B3L) are low-hydrogen electrodes producing weld metal that nominally contains 2.25% Cr and 1% Mo. They are designed to produce weld metal for high-temperature service and for matching the properties of some chromium-molybdenum base materials such as ASTM A387 Grade 22 or 22L. The maximum carbon of 0.05% will improve ductility and lower hardness, it will also reduce the high temperature strength and creep resistance of the weld metal. Since all chromium-molybdenum electrodes produce weld metal which will harden in still air, both preheat and PWHT are required for most applications. In AWS A5.5-81 and previous revisions, electrodes classified as E8018-B3L were classified as E9018-B3L. The composition ranges have not been changed from A5.5-81 for the corresponding classification. The base metals with which this classification are generally used have lower strength requirements than were reflected by the former electrode classification. Therefore, unless the higher strength indicated by the former classification of this electrode is specifically necessary for a particular welding procedure, the E8018-B3L classification should be considered as identical to the corresponding E9018-B3L classification of A5.5-81.

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

DIAMETERS: 3/32", 1/8", 5/32", 3/16"

STORAGE & RECONDITIONING: After opening, store in an oven controlled at 250°F to 400°F to ensure a low hydrogen weld deposit. If the electrode has been exposed to the atmosphere for extended periods of time, place in 250°F oven and slowly increase temperature to 600°F; bake for one hour at 600°F.

WELDING POSITIONS: All positions

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



TYPICAL DIFFUSIBLE HYDROGEN BY GAS CHROMATOGRAPHY: 1.9 ml/100g

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TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.05	0.03
Chromium (Cr)	2.00-2.50	2.22
Manganese (Mn)	0.90	0.59
Molybdenum (Mo)	0.90-1.20	1.03
Phosphorus (P)	0.03	0.02
Silicon (Si)	0.80	0.52
Sulfur (S)	0.03	0.01

NOTE: Single values are maximums.

TYPICAL MECHANICAL PROPERTIES:

	AWS Spec (min)	SR 1 HR. @ 1275°F
Ultimate Tensile Strength	80,000 psi (550 MPa)	97,000 psi (669 MPa)
Yield Strength	67,000 psi (460 MPa)	82,000 psi (563 MPa)
Percent Elongation in 2"	17%	23%

TYPICAL WELDING PARAMETERS:

Diameter	Type of Current	Amperage	Deposition Rate (lbs/hr)	Amperage Range	Voltage Range
3/32"	DCEP or AC	100	2.55	70-110	Variable
1/8"	DCEP or AC	135	2.83	90-160	Variable
5/32"	DCEP or AC	170	4.07	130-220	Variable
3/16"	DCEP or AC	250	5.58	200-300	Variable

NOTE: Optimum conditions are in boldface type. For out of position welding, decrease amperage by 15%. These values were calculated using optimum parameters and DCEP polarity. Allowance made for 2" stub loss. 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 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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