



Pinnacle Alloys are products of SOWESCO

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

EM12K DATA SHEET

Pinnacle Alloys EM12K

AWS CLASS EM12K

CODE AND SPECIFICATION DATA:

AWS A5.17 ASME SFA 5.17; UNS K01113

DESCRIPTION:

Pinnacle Alloys EM12K is a medium-manganese electrode for submerged arc welding. Depending on the flux used with this product, it can conform to either AWS A5.17 or A5.23.

When EM12K is used in combination with S-717 flux, the deposited weld metal is suitable for multi-layer welding of fine grain steels and high strength steels of thick cross sections. It can be used in applications such as pressure vessels, structural steels, and wind tower fabrication. This flux has a basicity index of 1.9 and can be used with DCEP, DC-AC, or AC-AC tandem and multi electrode welding.

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

WELDING POSITIONS: Flat and horizontal fillet only



TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.05-0.15	0.09
Copper (Cu)	0.35	0.065
Manganese (Mn)	0.80-1.25	1.12
Phosphorus (P)	0.03	0.012
Silicon (Si)	0.10-0.35	0.20
Sulfur (S)	0.03	0.008

NOTE: Single values are maximums.



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TYPICAL MECHANICAL PROPERTIES:

To be determined based upon wire/flux combination.

S-717 Flux Combination	AWS Spec (min)	As Welded
Ultimate Tensile Strength	70,000-95,000 psi (480-660 MPa)	80,100 psi (550 MPa)
Yield Strength	58,000 psi (400 MPa)	70,700 psi (485 MPa)
Percent Elongation in 2"	22%	30.6%
CVN @ -60°F (-50°C)	20 ft•lb _f (27 Joules)	52 ft•lb _f (70 Joules)
CVN @ -40°F (-40°C)	Not required	65 ft•lb _f (88 Joules)

NOTE: The above wire/flux combination conforms to AWS A5.17 F7A(P)6-EM12K

TYPICAL WELDING PARAMETERS:

	Diameter	Type of Current	Amperage	Volts
SAW	5/32"	DCEP	500-600	32-36

NOTE: The numbers presented above are for use with S-717 flux. Contact SOWESCO technical support for information on wire/flux combination recommendations at the number below. 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.