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

## E6013 DATA SHEET

### Pinnacle Alloys E6013

AWS CLASS E6013

#### CODE AND SPECIFICATION DATA:

AWS A5.1 ASME SFA 5.1; UNS W06013

#### DESCRIPTION:

Pinnacle Alloys E6013 have a flux covering which makes slag removal easy and gives a smooth arc transfer. This is particularly the case for the small diameter 3/32". This permits satisfactory operation with lower open-circuit AC voltage. E6013 electrodes were designed specifically for sheet metal work. Coverings of E6013 electrodes contain rutile, cellulose, ferromanganese, potassium silicate as a binder, and other siliceous materials. The potassium compounds permit the electrodes to operate at low amperages and low open-circuit voltages. Fillet welds tend to have a flat to convex weld face with even ripples in the horizontal welding position. The arc action tends to be quiet and the slag is fairly fluid. Pinnacle Alloys E6013 is an excellent choice for sheet metal welding, general purpose fabrication, machine parts, metal buildings, and shaft build-up.

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

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

**STORAGE & RECONDITIONING:** After opening, store at 60°F to 100°F and below 50% relative humidity or in a holding oven at 100°F to 120°F. Reconditioning should be for one hour at 250°F to 300°F.

**WELDING POSITIONS:** All positions  
3/16" is recommended for use in flat and horizontal positions only



SOWESCO, LLC

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#### TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.20	0.08
Chromium (Cr)	0.20	0.04
Manganese (Mn)	1.20	0.39
Molybdenum (Mo)	0.30	0.01
Nickel (Ni)	0.30	0.04
Phosphorus (P)	N.S.	0.012
Silicon (Si)	1.00	0.25
Sulfur (S)	N.S.	0.016
Vanadium (V)	0.08	0.01

\*N.S. means Not Specified.

NOTE: Single values are maximums.

#### TYPICAL MECHANICAL PROPERTIES:

Hermetically Sealed Cans (50#)	AWS Spec (min)	As Welded
Ultimate Tensile Strength	60,000 psi (430 MPa)	74,000 psi (514 MPa)
Yield Strength	48,000 psi (330 MPa)	67,000 psi (463 MPa)
Percent Elongation in 2"	22%	30%

Plastic Packaging (5# & 10#)	AWS Spec (min)	As Welded
Ultimate Tensile Strength	60,000 psi (430 MPa)	71,000 psi (490 MPa)
Yield Strength	48,000 psi (330 MPa)	62,400 psi (430 MPa)
Percent Elongation in 2"	22%	28%
CVN @ 32°F (0°C)	Not required	44 ft•lb <sub>f</sub> (60 Joules)
CVN @ 70°F (20°C)	Not required	55 ft•lb <sub>f</sub> (75 Joules)

#### TYPICAL WELDING PARAMETERS:

Diameter	Type of Current	Amperage	Deposition Rate (lbs/hr)	Amperage Range	Voltage Range
3/32"	<b>DCEP, AC, or DCEN</b>	<b>70</b>	<b>1.35</b>	45-80	19-24
1/8"	<b>DCEP, AC, or DCEN</b>	<b>100</b>	<b>1.85</b>	80-120	18.5-22.5
5/32"	<b>DCEP, AC, or DCEN</b>	<b>150</b>	<b>2.67</b>	130-160	20-24
3/16"	<b>DCEP, AC, or DCEN</b>	<b>190</b>	<b>4.22</b>	150-220	20-22.5

**NOTE: Optimum conditions are in boldface type. For out of position welding, decrease amperage by 15%. These values were calculated using optimum parameters and AC 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.**

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**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.