



ER70S-2 DATA SHEET

Pinnacle Alloys ER70S-2

AWS CLASS ER70S-2

CODE AND SPECIFICATION DATA:

AWS A5.18 ASME SFA 5.18; UNS K10726

DESCRIPTION:

Pinnacle Alloys ER70S-2 is primarily used for single-pass welding of killed, semi-killed, and rimmed steels, but may be used for some multipass applications. Because of the added deoxidants, these filler metals can be used for welding steels that have a rusty or dirty surface, with a possible sacrifice of weld quality depending on the surface. Pinnacle Alloys ER70S-2 filler metals are used extensively to produce high quality, high toughness welds with the GTAW process. These filler metals are also well suited for use in single side, melt through welding without a protective root shielding gas on the backside of the joint. Typical specifications for these steels are ASTM A 36, A 285-C, A 515-55, and A 516-70, which have UNS Numbers K02600, K02801, K02001, and K02700, respectively.

Pinnacle Alloys ER70S-2 is available in spools, drums, and cut-lengths, as well as in various finishes/coatings, such as copper coated, copper free (bare), and bronze finish.

DIAMETERS: .035", .045", 1/16", 3/32", 1/8", 5/32", 3/16"**WELDING POSITIONS:** All positions

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

**TYPICAL MECHANICAL PROPERTIES:**

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	70,000 psi (480 MPa)	83,000 psi (570 MPa)
Yield Strength	58,000 psi (400 MPa)	71,000 psi (490 MPa)
Percent Elongation in 2"	22%	29%
CVN @ -20°F (-30°C)	20 ft•lb _f (27 Joules)	133 ft•lb _f (180 Joules)



TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Aluminum (Al)	0.05-0.15	0.071
Carbon (C)	0.07	0.05
Chromium (Cr)	0.15	0.027
Copper (Cu)	0.50	0.17
Manganese (Mn)	0.9-1.4	1.17
Molybdenum (Mo)	0.15	0.007
Nickel (Ni)	0.15	0.012
Phosphorus (P)	0.025	0.013
Silicon (Si)	0.4-0.7	0.53
Sulfur (S)	0.035	0.003
Titanium (Ti)	0.05-0.15	0.066
Vanadium (V)	0.03	0.004
Zirconium (Zr)	0.02-0.12	0.057

NOTE: Single values are maximums.

TYPICAL WELDING PARAMETERS:

	Diameter	Amperage	Volts	Shielding Gas
GTAW	1/16"	50-150	9-13	100% Ar
	3/32"	85-250	9-15	
	1/8"	90-280	10-19	
	5/32"	120-320	10-19	
GMAW Spray Transfer	.035"	280-320	27-30	98% Ar/ 2% O ₂
	.045"	300-360	27-29	
GMAW Short-Circuit	.035"	140-200	16-20	75% Ar/ Balance CO ₂
	.045"	160-280	18-30	

NOTE: For out of position welding, decrease amperage by 15%. 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.

www.pinnaclealloys.com

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