



Pinnacle Alloys are products of SOWESCO

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

## ER70S-B2L DATA SHEET

### Pinnacle Alloys ER70S-B2L

AWS CLASS ER70S-B2L

#### CODE AND SPECIFICATION DATA:

AWS A5.28 ASME SFA 5.28; UNS K20500

#### DESCRIPTION:

Pinnacle Alloys ER70S-B2L has a nominal composition (wt-%) of **1.25 Cr, 0.5 Mo, with C restricted to 0.05 maximum**. Filler metals of this classification are used to weld  $\frac{1}{2}$ Cr- $\frac{1}{2}$ Mo, 1Cr- $\frac{1}{2}$ Mo,  $1\frac{1}{4}$ Cr- $\frac{1}{2}$ Mo steels for elevated temperatures and corrosive service. These creep resistant steels are typically used in chemical industries for heat exchangers, boilers, piping and pressure vessels at service temperatures up to 1000°F. Due to the low carbon content, and thus lower strength level, this alloy exhibits greater resistance to cracking and is more suitable for welds to be left in the as welded condition than ER80S-B2. This classification was previously ER80S-B2L in the A5.28-79 specification. The strength requirements and classification designator have been changed to reflect the true strength capabilities of the chemical composition. Preheat and interpass temperatures are typically kept between 275-325°F. This filler metal is used in both the as welded and PWHT condition, typically around 1150°F for one hour.

**DIAMETERS:** .035", .045", 1/16", 3/32", 1/8", 5/32"

**WELDING POSITIONS:** All positions

GMAW spray transfer limited to flat and horizontal fillet positions only



#### TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.05	0.027
Chromium (Cr)	1.20-1.50	1.32
Copper (Cu)	0.35	0.10
Manganese (Mn)	0.40-0.70	0.63
Molybdenum (Mo)	0.40-0.65	0.45
Nickel (Ni)	0.20	0.04
Phosphorus (P)	0.025	0.010
Silicon (Si)	0.40-0.70	0.49
Sulfur (S)	0.025	0.010

NOTE: Single values are maximums.

SOWESCO, LLC

www.pinnaclealloys.com

9384 Wallisville Road • Houston, Texas 77013 • 1-800-856-9353 • (713) 688-9353 • Fax (713) 688-6985  
2602 S. 50th Avenue • Phoenix, Arizona 85043 • 1-866-442-9353 • (602) 442-9353 • Fax (602) 442-9354



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#### TYPICAL MECHANICAL PROPERTIES:

	AWS Spec (min)	SR 1 HR @ 1150°F (GMAW)	SR 1 HR @ 1150°F (GTAW)
Ultimate Tensile Strength	75,000 psi (515 MPa)	82,700 psi (570 MPa)	79,800 psi (550 MPa)
Yield Strength	58,000 psi (400 MPa)	66,700 psi (460 MPa)	68,000 psi (470 MPa)
Percent Elongation in 2"	19%	23%	23%
CVN @ 68°F (20°C)	Not required	110 ft•lb <sub>f</sub> (150 Joules)	184 ft•lb <sub>f</sub> (250 Joules)

#### TYPICAL WELDING PARAMETERS:

	Diameter	Amperage	Volts	Shielding Gas
<b>GTAW</b>	3/32"	70-210	9-16	100% Ar
	1/8"	90-280	10-19	
	5/32"	120-320	10-19	
<b>GMAW</b> Spray Transfer	.035"	200-260	26-32	98% Ar/ 2% O <sub>2</sub>
	.045"	240-360	26-34	
	1/16"	270-450	27-38	

**NOTE:** 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.