



ER80S-B2 DATA SHEET

Pinnacle Alloys ER80S-B2

AWS CLASS ER80S-B2

CODE AND SPECIFICATION DATA:

AWS A5.28 ASME SFA 5.28; UNS K20900

DESCRIPTION:

Pinnacle Alloys ER80S-B2 has a nominal composition (wt-%) of **1.25 Cr, 0.5 Mo**. Filler metals of this classification are used to weld $\frac{1}{2}\text{Cr}-\frac{1}{2}\text{Mo}$, $1\text{Cr}-\frac{1}{2}\text{Mo}$, $1\frac{1}{4}\text{Cr}-\frac{1}{2}\text{Mo}$ steels for elevated temperatures and corrosive service. These creep resistant steels are typically used in chemical industries and the ammonia synthesis process for heat exchangers, boilers, piping and pressure vessels at service temperatures up to 1000°F. Careful control of preheat, interpass temperatures, and post heat is essential to avoid cracking. These electrodes are classified after post weld heat treatment. Special care must be used when using them in the as-welded condition due to high strength levels. Preheat and interpass temperatures are typically kept between 275-325°F. This filler metal is used in the 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)	0.07-0.12	0.085
Chromium (Cr)	1.20-1.50	1.319
Copper (Cu)	0.35	0.134
Manganese (Mn)	0.40-0.70	0.574
Molybdenum (Mo)	0.40-0.65	0.477
Nickel (Ni)	0.20	0.043
Phosphorus (P)	0.025	0.007
Silicon (Si)	0.40-0.70	0.514
Sulfur (S)	0.025	0.008

NOTE: Single values are maximums.



AN ISO 9001:2015 COMPANY
CERTIFICATE NO.: C755336

TYPICAL MECHANICAL PROPERTIES:

	AWS Spec (min)	SR 1 HR @ 1150°F (GMAW)	SR 1 HR @ 1150°F (GTAW)
Ultimate Tensile Strength	80,000 psi (550 MPa)	82,700 psi (570 MPa)	85,600 psi (590 MPa)
Yield Strength	68,000 psi (470 MPa)	69,600 psi (480 MPa)	71,000 psi (490 MPa)
Percent Elongation in 2"	19%	21%	25%
CVN @ 68°F (20°C)	Not required	110 ft•lb _f (150 Joules)	184 ft•lb _f (250 Joules)

TYPICAL WELDING PARAMETERS:

	Diameter	Amperage	Volts	Shielding Gas
GTAW	3/32"	70-210	9-16	100% Ar
	1/8"	90-280	10-19	
	5/32"	120-320	10-19	
GMAW Spray Transfer	.035"	200-260	26-32	98% Ar/ 2% O ₂
	.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.

www.pinnaclealloys.com

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