



Pinnacle Alloys are products of SOWESCO

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

## ER316/316L DATA SHEET

### Pinnacle Alloys ER316/316L

AWS CLASS ER316, ER316L

#### CODE AND SPECIFICATION DATA:

AWS A5.9 ASME SFA 5.9; UNS S31680, S31683

#### DESCRIPTION:

Pinnacle Alloys ER316L has a nominal composition (wt.-%) of 19 Cr, 12.5 Ni, 2.5 Mo, with a carbon content restricted to 0.03 maximum. This low carbon material reduces the possibility of intergranular carbide precipitation. This increases the resistance to intergranular corrosion without the use of stabilizers, such as niobium or titanium. Strength of this low-carbon alloy however, is less than that of the niobium-stabilized alloys or Type 316H at elevated temperatures. Pinnacle Alloys ER316L is well suited for applications in the chemical and petrochemical industries. It offers excellent corrosion and pitting resistance in marine and industrial environments.

**DIAMETERS:** .025", .030", .035", .045", 1/16", 3/32", 1/8", 5/32"

**WELDING POSITIONS:** GTAW & GMAW: All positions



#### TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.03	0.010
Chromium (Cr)	18.0-20.0	18.18
Copper (Cu)	0.75	0.14
Manganese (Mn)	1.00-2.50	1.82
Molybdenum (Mo)	2.00-3.00	2.60
Nickel (Ni)	11.0-14.0	11.72
Nitrogen (N)	N.S.*	0.056
Phosphorus (P)	0.03	0.016
Silicon (Si)	0.30-0.65	0.39
Sulfur (S)	0.03	0.010

\*N.S. means Not Specified.

NOTE: Single values are maximums.

SOWESCO, LLC

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#### FERRITE NUMBER AND PITTING RESISTANCE EQUIVALENT NUMBER:

To obtain Ferrite Numbers or PRE<sub>N</sub>, please contact SOWESCO technical support at the number below.

#### TYPICAL MECHANICAL PROPERTIES:

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	Not required	88,000 psi (610 MPa)
Percent Elongation in 2"	Not required	35%

#### TYPICAL WELDING PARAMETERS:

	Diameter	Amperage	Volts	Shielding Gas
<b>GTAW</b>	1/16"	80-110		100% Ar
	3/32"	90-130		
	1/8"	120-175		
	5/32"	150-220		
<b>GMAW</b> Spray Transfer	.030"	130-200	23-27	98% Ar/ 2% O <sub>2</sub> (35 cfh)
	.035"	150-225	23-26	
	.045"	200-325	24-28	
	1/16"	300-350	24-27	
<b>GMAW</b> Short-Circuit	.030"	50-150	14-20	90% He/ 7½% Ar/ 2½% CO <sub>2</sub> (25 cfh)
	.035"	60-200	14-22	
	.045"	75-225	15-23	
	1/16"	100-250	16-23	
<b>SAW</b>	3/32"	275-350	28-30	Suitable Flux
	1/8"	350-450	29-32	

**NOTE:** 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.

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