

# BLUE MAX® MIG 316LSi

Stainless ▪ AWS ER316Si, ER316LSi

## KEY FEATURES

- High silicon level for increased puddle fluidity and toe wetting
- Proprietary surface lubricant for steady feeding and arc stability
- Molybdenum grade for increased corrosion resistance
- Q2 Lot® - Certificate showing actual wire composition and calculated ferrite number (FN) available online
- Controlled ferrite content for maximum corrosion resistance
- Similar to 316L, with higher silicon content for optimum ease and speed in MIG welding and smooth bead appearance

## WELDING POSITIONS

All

## CONFORMANCES

<b>AWS A5.9/A5.9M: 2012</b>	ER316Si, ER316LSi
<b>ASME SFA-A5.9 ABS:</b>	ER316Si, ER316LSi
<b>CWB/CSA W48-06:</b>	ER316Si, ER316LSi
<b>EN ISO 14343-B:</b>	ER316LSi
<b>ISO 14343:2009:</b>	SS316LSi (19 12 3 L Si)

## TYPICAL APPLICATIONS

- Molybdenum bearing austenitic stainless steels
- Type 316 and 316L

## SHIELDING GAS

Short Circuiting Transfer:

90% Helium / 7-1/2% Argon / 2-1/2% CO<sub>2</sub>

Axial Spray Transfer:

98% Argon / Balance Oxygen

## DIAMETERS / PACKAGING

Diameter in (mm)	25 lb (11.3 kg) Plastic Spool	250 lb (113 kg) Accu-Trak® Drum	500 lb (227 kg) Accu-Trak® Drum	500 lb (227 kg) Speed Feed® Reel
0.030 (0.8)	ED023963			
0.035 (0.9)	ED019298		ED029772	
0.045 (1.1)	ED019299	ED035112	ED029773	
1/16 (1.6)	ED019300			ED035115

## MECHANICAL PROPERTIES<sup>(1)</sup> – As Required per AWS A5.9/A5.9M: 2012

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Ferrite Number
<b>Requirements</b> – AWS ER316Si, ER316LSi	Not Specified			
<b>Test Results<sup>(3)</sup></b> – As-Welded	405 (59)	560 (81)	40	10

## WIRE COMPOSITION<sup>(1)</sup> – As Required per AWS A5.9/A5.9M: 2012

	%C <sup>(3)</sup>	%Cr	%Ni	%Mo	%Mn
<b>Requirements</b> – AWS ER316LSi	0.03 max	18.0-20.0	11.0-14.0	2.0-3.0	1.0-2.5
<b>Test Results<sup>(3)</sup></b>	0.02	18.9	11.8	2.2	2.1
	%Si	%P	%S	%N <sup>(4)</sup>	%Cu
<b>Requirements</b> – AWS ER316LSi	0.65-1.00	0.03 max	0.03 max	Not Specified	0.75 max
<b>Test Results<sup>(3)</sup></b>	0.81	0.02	0.01	0.05	0.23

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>See test results disclaimer <sup>(3)</sup>AWS Requirement for ER309Si is 0.12% max. carbon.

## TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD <sup>(5)</sup> mm (in)	Wire Feed Speed m/min (in/min)	Voltage (Volts)	Approx. Current (Amps)	Deposition Rate kg/hr (lb/hr)
<b>Short Circuit Transfer</b>					
<b>0.035 in (0.9 mm), DC+</b> 90% He / 7-1/2% Ar / 2-1/2% CO <sub>2</sub>	13 (1/2)	3.0 (120)	19-20	55	0.9 (2.0)
	13 (1/2)	4.6 (180)	19-20	85	1.4 (3.0)
	13 (1/2)	5.8 (230)	20-21	105	1.8 (3.9)
	13 (1/2)	7.6 (300)	20-21	125	2.3 (5.0)
	13 (1/2)	8.9 (350)	21-22	140	2.7 (5.9)
	13 (1/2)	10.2 (400)	22-23	160	3.1 (6.7)
<b>0.045 in (1.1 mm), DC+</b> 90% He / 7-1/2% Ar / 2-1/2% CO <sub>2</sub>	13 (1/2)	2.5 (100)	19-20	100	1.1 (2.8)
	13 (1/2)	3.2 (125)	19-20	120	1.5 (3.5)
	13 (1/2)	3.8 (150)	21	135	1.7 (4.2)
	13 (1/2)	4.4 (175)	21	140	2.0 (4.8)
	13 (1/2)	5.6 (220)	22	170	2.6 (6.1)
	13 (1/2)	6.4 (250)	22-23	175	2.9 (6.9)
13 (1/2)	7.0 (275)	22-23	185	3.2 (7.6)	

**Axial Spray Transfer**

<b>0.035 in (0.9 mm), DC+</b> 98% Ar/2% O <sub>2</sub>	13 (1/2)	10.2 (400)	22	180	3.1 (6.7)
	13 (1/2)	10.8 (425)	23	190	3.3 (7.1)
	13 (1/2)	11.4 (450)	23	200	3.5 (7.5)
	13 (1/2)	12.1 (475)	23	210	3.7 (8.0)
<b>0.045 in (1.1 mm), DC+</b> 98% Ar/2% O <sub>2</sub>	13 (1/2)	6.1 (240)	23	195	2.8 (6.6)
	13 (1/2)	6.6 (260)	24	230	3.0 (7.2)
	13 (1/2)	7.6 (300)	24	240	3.5 (8.3)
	13 (1/2)	8.3 (325)	25	250	3.8 (9.0)
	13 (1/2)	9.1 (360)	25	260	4.2 (10.0)
<b>1/16 in (1.6 mm), DC+</b> 98% Ar/2% O <sub>2</sub>	19 (3/4)	4.4 (175)	25	260	4.3 (9.2)
	19 (3/4)	5.1 (200)	26	310	4.9 (10.5)
	19 (3/4)	6.4 (250)	26	330	6.2 (13.1)
	19 (3/4)	7.0 (275)	27	360	6.8 (14.4)
	19 (3/4)	7.6 (300)	28	390	7.4 (15.8)

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>See test results disclaimer. <sup>(3)</sup>AWS Requirement for ER309Si is 0.12% max. carbon. <sup>(4)</sup>Included in 0.50% max. for other elements not specified.

<sup>(5)</sup>To estimate ESO, subtract 1/8 in (3 mm) from CTWD.

## IMPORTANT: SPECIAL VENTILATION AND/OR EXHAUST REQUIRED

Fumes from the normal use of some welding products can contain significant quantities of components - such as chromium and manganese - which can lower the 5.0 mg/m<sup>3</sup> maximum exposure guideline for general welding fume.

BEFORE USE, READ AND UNDERSTAND THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THIS PRODUCT AND SPECIFIC INFORMATION PRINTED ON THE PRODUCT CONTAINER.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at [www.lincolnelectric.com](http://www.lincolnelectric.com)

## TEST RESULTS

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.

## CUSTOMER ASSISTANCE POLICY

The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change - This information is accurate to the best of our knowledge at the time of printing. Please refer to [www.lincolnelectric.com](http://www.lincolnelectric.com) for any updated information.