

# BLUE MAX® MIG 309LSi

Stainless ■ AWS ER309Si, ER309LSi

## KEY FEATURES

- High silicon level for increased puddle fluidity and toe wetting
- Proprietary surface lubricant for steady feeding and arc stability
- Q2 Lot® - Certificate showing actual wire composition and calculated ferrite number (FN) available online
- Controlled ferrite content for maximum corrosion resistance
- The same composition as Blue Max® MIG 309L with higher silicon content to improve the bead appearance and increase welding ease
- Excellent contour of the weld minimizes the need for grinding

## WELDING POSITIONS

All

## CONFORMANCES

<b>AWS A5.9:</b>	ER309Si, ER309LSi
<b>ASME SFA-A5.9:</b>	ER309Si, ER309LSi
<b>ABS:</b>	ER309Si, ER309LSi
<b>CWB/CSA W48-06:</b>	ER309LSi
<b>EN ISO 14343-B:</b>	SS309LSi
<b>ISO 14343:2009:</b>	(23 12 L Si)

## TYPICAL APPLICATIONS

- Designed for joining stainless steel to mild or low alloy steel
- Performs exceptionally at high wire feed speeds

## SHIELDING GAS

Short Circuiting Transfer:

90% Helium / 7.5% Argon / 2.5% CO<sub>2</sub>

Axial Spray Transfer:

98% Argon/ 2% Oxygen

## DIAMETERS / PACKAGING

Diameter in (mm)	25 lb (11.3 kg) Plastic Spool	33 lb (15 kg) Plastic Spool	500 lb (227 kg) Accu-Trak® Drum
0.030 (0.8)	ED023962		
0.035 (0.9)	ED019295 <sup>(6)</sup>	ED037291	ED029770
0.045 (1.1)	ED019296 <sup>(6)</sup>	ED037292	ED029771
1/16 (1.6)	ED019297 <sup>(6)</sup>	ED037293	

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

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Ferrite Number
<b>Typical Results<sup>(3)</sup> – As-Welded</b>	450 (65)	595 (86)	42	11

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

	%C <sup>(4)</sup>	%Cr	%Ni	%Mo	%Mn
<b>Requirements – AWS ER309LSi</b>	0.03 max	23.0-25.0	12.0-14.0	0.75 max	1.0-2.5
<b>Typical Results<sup>(3)</sup></b>	0.03	23.5	13.7	0.28	2.0
	%Si	%P	%S	%N <sup>(5)</sup>	%Cu
<b>Requirements – AWS ER309LSi</b>	0.65-1.00	0.03 max	0.03 max	Not Specified	0.75 max
<b>Typical Results<sup>(3)</sup></b>	0.89	0.02	0.01	0.06	0.22

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer. <sup>(4)</sup>AWS Requirements for ER308Si is 0.08% max carbon. <sup>(5)</sup>Included in 0.50% max. for other elements not specified.

<sup>(6)</sup>This 25 lb (11.3 kg) package will be discontinued as stock is depleted and replaced with the 33 lb (15 kg) package shown. <sup>(7)</sup>To estimate ESO, subtract 1/8 in (3 mm) from CTWD.

## TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD <sup>(6)</sup> mm (in)	Wire Feed Speed m/min (in/min)	Voltage (Volts)	Approx. Current (Amps)	Deposition Rate kg/hr (lb/hr)
-------------------------------------	--------------------------------	-----------------------------------	--------------------	---------------------------	----------------------------------

### Short Circuit Transfer

<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>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer. <sup>(4)</sup>AWS Requirements for ER308Si is 0.08% max carbon. <sup>(5)</sup>Included in 0.50% max. for other elements not specified. <sup>(6)</sup>To estimate ESQ, subtract 1/8 in (3 mm) from CTWD.

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

FUMES AND GASES can be hazardous to your health.

- Fumes from the normal use of this product contain significant quantities of potentially hazardous compounds. See consumable product label/insert.
- Keep your head out of the fumes.
- Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area.
- An approved respirator should be used unless exposure assessments are below applicable exposure limits.

#### 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.