

LINCOLNWELD® 309/309L

Stainless ▪ AWS ER309, ER309L

KEY FEATURES

- Designed to be used primarily with basic fluxes that recover nearly all of the wire chromium in the deposit
- Q2 Lot® - Certificate showing actual wire composition and calculated ferrite number (FN) available online
- Low carbon content recommended where there is a risk of intergranular corrosion
- Reduced carbon levels (0.03% max) that offers increased resistance to inter-granular corrosion

RECOMMENDED FLUXES

Lincolnweld® 801, 802, 880, 880M, 882, P2000, P2007, ST-100

CONFORMANCES

AWS A5.9/A5.9M:	ER309, ER309L
ASME SFA-A5.9:	ER309, ER309L
ABS:	ER309, ER309L
CWB/CSA W48-06:	ER309L
EN ISO 14343-B:	SS309L
ISO 14343:2009:	(23 12 L)
MIL-E-19933E (SH)	MIL 309

TYPICAL APPLICATIONS

- ASTM A743, A744 Types CF-8 and CF-3 and ASTM A240 Type 309S
- For joining carbon or mild alloy steel to austenitic stainless steels
- Can also be used on "18-8" steels, since it overmatches the corrosion resistance, if the weldment will not be exposed to temperatures of 538° C to 927° C (1000° F to 1700° F)
- Ideal for joining stainless steels to themselves or to carbon or low alloy steels, and can be used at temperatures up to 700° F (371° C)

DIAMETERS / PACKAGING

Diameter in (mm)	55 lb (25 kg) Steel Spool	500 lb (227 kg) Speed Feed® Drum	500 lb (227 kg) Speed Feed® Reel
5/64 (2.0)	ED033151		
3/32 (2.4)	ED035168	ED036448	ED035167
1/8 (3.2)	ED035169	ED036449	
5/32 (4.0)	ED035170	ED036450*	

*Available upon request

MECHANICAL PROPERTIES⁽¹⁾ – As Required per AWS A5.9/A5.9M

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Ferrite Number
Test Results ^(3,5) - As-Welded	400 (58)	575 (83)	35	8

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾AWS Requirement for ER309 is 0.08% max. carbon.

⁽⁵⁾Results shown correspond with the recommended Lincolnweld® fluxes listed above, but not required per AWS A5.9-12.

WIRE COMPOSITION⁽¹⁾ – As Required per AWS A5.9/A5.9M

	%C ⁽⁴⁾	%Cr	%Ni	%Mo	%Mn	%Si
Requirements – AWS ER309, ER309L	0.03 max	23.0 - 25.0	12.0 - 14.0	0.75 max	1.0 - 2.5	0.30 - 0.65
Typical Results⁽³⁾						
Wire Composition	0.02	23.9	13.0	0.15	1.8	0.50
All Weld Metal Composition ⁽⁵⁾	0.03	23.1 - 23.6	13.0	0.15	1.5 - 2.0	0.50 - 0.80

TYPICAL OPERATING PROCEDURES

Diameter - in (mm)	Wire Feed Speed - in/min (m/min)	Voltage (volts)	Current (amps)
5/64 (2.0)	80-240 (2.0-6.1)	24-30	190-500
3/32 (2.4)	60-210 (1.5-5.3)	26-32	195-575
1/8 (3.2)	35-110 (0.9-2.8)	28-34	200-700
5/32 (4.0)	30-75 (0.8-1.9)	30-36	320-775

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾AWS Requirement for ER309 is 0.08% max. carbon. ⁽⁵⁾Results shown correspond with the recommended Lincolnweld® fluxes listed above, but not required per AWS A5.9-12.

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/m³ maximum exposure guideline for general welding fume.

BEFORE USE, READ AND UNDERSTAND THE SAFETY DATA SHEET (SDS) 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

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 for any updated information.