

# LINCOLNWELD® 860®

800 Series Neutral Flux ■ EN ISO 14174 – S A AB 1

## KEY FEATURES

- Industry standard for submerged arc welding applications
- Excellent operating characteristics in a variety of general welding applications
- Capable of producing weld deposits with impact toughness exceeding 27 J (20 ft·lbf) at -40°C (-40°F) with Lincolnweld® L-61®
- Actual (Type 3.1) certificates for each lot of flux showing chemical composition, particle size and moisture level are available in the certificate center of lincolnelectric.com

## PACKAGING

50 lb (22.7 kg) Bag

ED019589, ED030840\*

\*Tested Material

## TYPICAL APPLICATIONS

- AASHTO Fracture Critical applications with Lincolnweld® L-61® wire
- Pipe and other double ending applications
- General purpose structural and multiple pass welds
- Storage tanks using L-61® or LA-85

## RECOMMENDED WIRES

Mild Steel

Lincolnweld® L-50®, L-56®, L-60, L-61®, LA-71, L-S3

Low Alloy Steel

Lincolnweld® L-70, LA-75, LA-82, LA-85

## PRODUCT INFORMATION

Basicity Index: 1.1

Density: 1.4 g/cm<sup>3</sup>

## FLUX COMPOSITION<sup>(1)</sup>

	%SiO <sub>2</sub>	%MnO	%MgO	%CaF <sub>2</sub>	%Na <sub>2</sub> O	%Al <sub>2</sub> O <sub>3</sub>	%CaO	%TiO <sub>2</sub>	% Metal Alloys
Lincolnweld® 860®	19	11	17	12	2	32	2	2	3 max

## AWS TEST RESULTS<sup>(1)</sup>

Flux/Wire Combination	Weld Condition	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Charpy V-Notch		AWS Classification (A5.17/A5.23)
					J (ft·lbf)	@ °C (°F)	
L-50®	As-welded	430 (62)	520 (75)	30	84 (62)	-29 (-20)	F7A2-EM13K-H8
L-56®	As-welded	470 (68)	590 (86)	28	61 (45)	-29 (-20)	F7A2-EH11K
L-56®	Stress-relieved <sup>(3)</sup>	440 (64)	570 (82)	29	80 (59)	-29 (-20)	F7P2-EH11K
L-60	As-welded	370 (54)	450 (65)	34	138 (102)	-29 (-20)	F6A2-EL12-H8
L-61®	As-welded	410 (59)	500 (72)	31	58 (43)	-40 (-40)	F7A4-EM12K-H8
L-61®	Stress-relieved <sup>(3)</sup>	340 (49)	440 (64)	37	222 (164)	-46 (-50)	F6P5-EM12K-H8
L-S3	As-welded	500 (73)	590 (86)	28	52 (38)	-29 (-20)	F7A2-EH12K
LA-71	As-welded	450 (65)	540 (78)	30	110 (81)	-29 (-20)	F7A2-EM14K-H8
LA-71	Stress relieved <sup>(3)</sup>	400 (58)	520 (75)	32	119 (88)	-29 (-20)	F7P2-EM14K-H8
L-70	As-welded	450 (65)	550 (80)	28	54 (40)	-29 (-20)	F7A2-EA1-A2-H8
L-70	Stress-relieved <sup>(3)</sup>	430 (62)	520 (76)	31	47 (35)	-29 (-20)	F7P2-EA1-A2-H8
LA-75	As-welded	460 (66)	550 (80)	32	107 (79)	-29 (-20)	F7A2-ENi1K-Ni1-H8
LA-75	Stress-relieved <sup>(3)</sup>	410 (60)	540 (79)	30	99 (73)	-29 (-20)	F7P2-ENi1K-Ni1-H8
LA-82	As-welded	660 (96)	740 (107)	24	50 (37)	-40 (-40)	F9A4-EF2-F2-H8
LA-85	As-welded	520 (75)	600 (87)	26	38 (28)	-40 (-40)	E8A4-ENi5-Ni5-H8

<sup>(1)</sup>See test results disclaimer. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>Stress-relieved for 1 hour at 621°C (1150°F).

NOTE: For the most up-to-date AWS certificates of conformance please visit [www.lincolnelectric.com](http://www.lincolnelectric.com)

*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.

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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.