

Lincolnweld® 842-H™



Photo: Robust design for the most challenging applications.

Lincolnweld® 842-H™ is designed to meet the specific welding requirements of the offshore construction industry where consistency in operability, impact toughness, and diffusible hydrogen is critical.

Lincolnweld® 842-H™ excels in typical offshore welding joints which generally have narrow groove angles and heavy wall thicknesses with excellent slag detachability, superior bead profile and smoothness, and unparalleled tie-in.

A neutral welding flux capable of consistently exceeding requirements for impact toughness at -60°C (-76°F) and Crack Tip Opening Displacement (CTOD) toughness at -10°C (14°F).

Lincolnweld® 842-H™ leads the industry with ultra-low diffusible hydrogen in both AC and DC polarities of less than 3 mL/100g of deposited weld metal.

KEY FEATURES

- ▶ **Ultra-Low Diffusible Hydrogen** – Less than 3 mL/100g of deposited weld metal in DC and AC polarities
- ▶ **Consistent Impact Toughness** – Impact toughness capable of exceeding CVN values of 160 J (118 ft•lbs) at -60°C (-76°F) in the body and cap pass for consistent CTOD toughness
- ▶ **Outstanding Bead Profile** – Smooth bead profile with low entry angles especially desirable for cap pass welding in fatigue sensitive applications
- ▶ **Excellent AC and DC Operation** – High current capacity for single or multiple arc configurations
- ▶ **High Operator Appeal** – Excellent slag detachment and wash-out
- ▶ **Robust Design** – Allows for consistent deposit composition in a central recovery system



Photo: Offshore narrow groove result. Exceptional performance in demanding offshore joint configurations.

Middle Toughness

- 170 J (126 ft•lbs) at -40°C (-40°F)
- 161 J (119 ft•lbs) at -51°C (-60°F)
- 142 J (105 ft•lbs) at -62°C (-80°F)

Cap Toughness

- 191 J (141 ft•lbs) at -40°C (-40°F)
- 175 J (129 ft•lbs) at -51°C (-60°F)
- 127 J (94 ft•lbs) at -62°C (-80°F)

APPLICATIONS

Lincolnweld® 842-H™ (Flux) and Lincolnweld® matching electrodes can meet the requirements for offshore welding from 355 MPa to 620 MPa yield strength materials where submerged arc welding is commonly required, including:

- ▶ Semi-submersible production and exploration platforms
- ▶ Fixed, jacket and work platforms
- ▶ Compliant towers
- ▶ Topside structural applications
- ▶ SPAR, FPSO, and FSO applications
- ▶ Jack up rigs

CONFORMANCES

Lincolnweld® 842-H™ meets the most stringent agency classifications for impact toughness and diffusible hydrogen.

Lincolnweld® 842-H™: EN ISO 14174 S A FB 1 55 AC H4

	Lincolnweld® L-S3	Lincolnweld® LA-85	Lincolnweld® LA-84
AWS A5.17/A5.17M: 1997	F7A8-EH12K-H4, F7P8-EH12K-H4	— —	— —
AWS A5.23/A5.23M: 2011	— —	F8A8-ENi5-Ni5-H4, F8P8-ENi5-Ni5-H4	F9A8-EF3-F3-H4, F9P8-EF3-F3-H4
ABS	5YQM420 H5 (AC)	5YQM500 H5 (AC)	5YQM550 H5 (AC)
DNV Grade	V YM42 H5 (AC)	V YM50 H5 (AC)	V YM55 H5 (AC)
LR	5Y42M H5 (AC)	5Y50M H5 (AC)	5Y55M H5 (AC)
GL	6Y42M H5 (AC)	6Y50M H5 (AC)	6Y55M H5 (AC)

MECHANICAL PROPERTIES

Lincolnweld® 842-H™ delivers consistent impact toughness with each alloy system even at sub-zero temperatures.

	Lincolnweld® 842-H™ / Lincolnweld® L-S3	Lincolnweld® 842-H™ / Lincolnweld® LA-85	Lincolnweld® 842-H™ / Lincolnweld® LA-84
MECHANICAL PROPERTIES OF WELD DEPOSITS			
Tensile Strength, MPa (ksi)			
As-Welded	580 (84)	610 (88)	710 (103)
Stress Relief 1 hour @ 620°C (1150°F)	550 (79)	620 (90)	690 (101)
Yield Strength, 0.2% Offset, MPa (ksi)			
As-Welded	480 (70)	530 (77)	640 (92)
Stress Relief 1 hour @ 620°C (1150°F)	420 (61)	530 (76)	610 (89)
Elongation			
As-Welded	31	29	25
Stress Relief 1 hour @ 620°C (1150°F)	32	30	27
Average Impact Energy			
As-Welded	194 (143)	188 (138)	140 (103)
Joules @ -62°C (ft•lbs @ -80°F)	193,194,195 (142,143,144)	184,186,193 (136,137,142)	137,137,145 (101, 101, 107)
Stress Relief 1 hour @ 620°C (1150°F)	162 (119)	151 (112)	120 (89)
Joules @ -62°C (ft•lbs @ -80°F)	152,163,171 (112,120,126)	134,159,161 (99,117,119)	111,114,136 (82, 84, 100)
ALL WELD METAL CAP PASS TOUGHNESS			
Average Impact Energy			
Joules @ -51°C (ft•lbs @ -60°F)	138 (101) 140, 117, 157 (103, 86, 116)	157 (116) 155, 160, 157 (114, 118, 116)	131 (94) 168, 132, 94 (124, 97, 62)

MECHANICAL PROPERTIES

Lincolnweld842-H™ CTOD information in the weld metal centerline (WCL - refined weld metal) and 5mm from centerline (5MM WCL -unrefined weld metal).

Location	Geometry	Orientation	Test Temp (°C)	Delta (mm)	Fracture Mode
LINCOLNWELD 842-H™ /L-S3					
WCL	Bx2B	T-T	-10	2.49	Ductile
WCL	Bx2B	T-T	-10	2.41	Ductile
WCL	Bx2B	T-T	-10	2.08	Ductile
5MM WCL	Bx2B	T-T	-10	2.20	Ductile
5MM WCL	Bx2B	T-T	-10	1.92	Ductile
5MM WCL	Bx2B	T-T	-10	1.83	Ductile
LINCOLNWELD 842-H™ /LA-85					
WCL	Bx2B	T-T	-10	1.77	Ductile
WCL	Bx2B	T-T	-10	1.37	Ductile
WCL	Bx2B	T-T	-10	1.80	Ductile
5MM WCL	Bx2B	T-T	-10	1.85	Ductile
5MM WCL	Bx2B	T-T	-10	1.43	Ductile
5MM WCL	Bx2B	T-T	-10	1.70	Ductile

Quality Assurance

Lincoln Electric has the most comprehensive quality assurance and compliance programs in the industry. From raw material control and sourcing to final packaging, Lincoln Electric leads the industry in product consistency with exceptionally stringent tolerances to guarantee an extremely consistent chemical make-up.

Manufacturing

Lincolnweld842-H™ is manufactured with state-of-the-art equipment ensuring precise control at each step of the manufacturing process. This is especially critical for maintaining low diffusible hydrogen during manufacturing and maintaining product consistency.

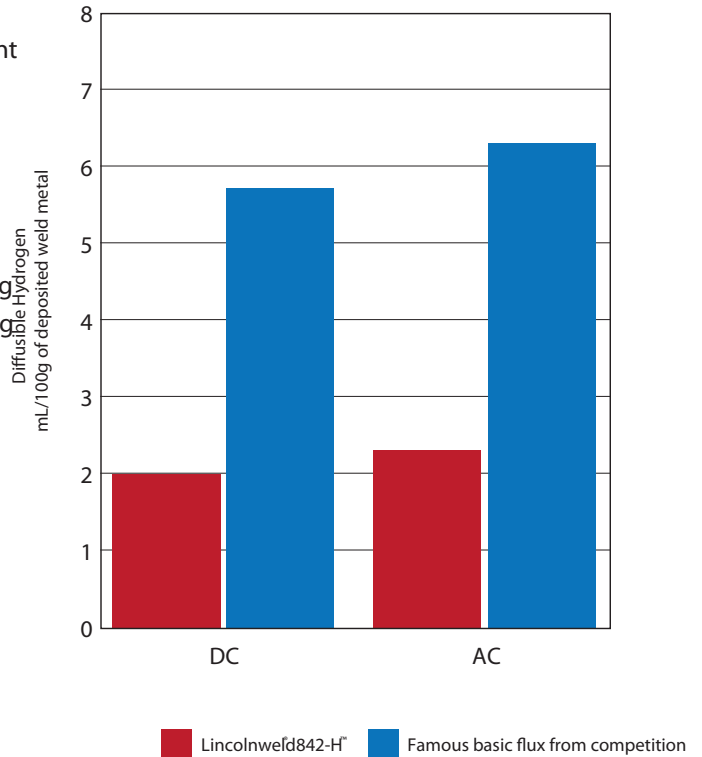
Packaging

Available standard in the Sahara Ready-Pak™ hermetically sealed bag which is designed to protect the flux from exposure to humid conditions and allow its use without re-drying.

The Next-Generation Lincolnweld842-H™

This neutral welding flux is designed to produce ultra-low diffusible hydrogen – typically less than 3 mL/100g of deposited weld metal. This reduces the likelihood of weld metal hydrogen cracking.

**LINCOLNWELD 842-H™
DIFFUSIBLE HYDROGEN DATA**



STORAGE AND HANDLING INSTRUCTIONS

Lincoln Electric submerged arc welding flux can be used directly from its original, undamaged package, if it has been stored properly and protected from rain or snow. When proper procedures are not followed, flux may show signs of moisture. These can include porosity, a rough bead surface or slag that is difficult to remove. In many instances these fluxes can be re-dried in general welding applications.

RE-DRYING FLUX

- ▶ Remove flux from its original packaging and place in a clean oven set between 120°-205°C (250°-400°F).
- ▶ Leave in oven long enough to raise the temperature of the entire bulk of flux to your set temperature for a minimum of one hour.
- ▶ For ovens in which heating rods are inserted into the flux, do not let the temperature of flux adjacent to the rods exceed 205°C (400°F).

For more information or to schedule a demonstration at your facility please contact your local Lincoln Electric sales office.

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.

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