

Product Data Sheet

Membranes

SW30HR LE-4040 Seawater Reverse Osmosis Element

Description

SW30HR LE-4040 Reverse Osmosis Element is a four-inch diameter version of SW30HR LE-400, the industry's leading seawater element which offers an unprecedented combination of high salt rejection and productivity to enable the lowest total cost of purifying high salinity water.

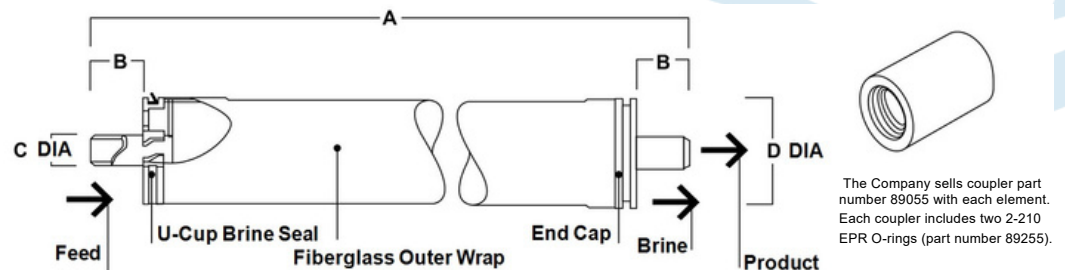
- I SW30HRLE-4040 may be used as a pilot element to demonstrate performance for the design of larger systems.
- I SW30HRLE-4040 delivers the highest sodium chloride and boron rejection to help meet World Health Organization (WHO) and other drinking water standards.
- I SW30HRLE-4040 Elements deliver high performance over the operating life time without the use of oxidative post-treatments like many competitive products. This is one reason Elements are more durable and may be cleaned more effectively over a wider pH range (1-13) than other RO elements.

Typical Properties

Product	Part Number	Active Area ft ² (m ²)	Permeate Flow Rate gpd (m ³ /d)	Minimum Salt Rejection %	Stabilized Salt Rejection %
SW30HR LE-4040	255048	85 (7.9)	1,600 (6.1)	99.60	99.75

1. Permeate flow and salt rejection based on the following test conditions: 32,000 ppm NaCl, 800 psi (5.5 MPa), 77°F (25°C), 8% recovery, pH 8.
2. Permeate flows for individual elements may vary +/-20%.
3. For the purpose of improvement, specifications may be updated periodically.

Element Dimensions



Product	Dimensions – Inches (mm)				1 inch = 25.4 mm
	Feed Spacer (mil)	A	B	C	
SW30HR LE-4040	28	40.0(1,016)	1.05(26.7)	0.75(19)	3.9(99)

1. Refer to [Design Guidelines for multiple-element systems of midsize elements](#) (Form No. 45-D01588-en).
2. Elements fit nominal 4-inch I.D. pressure vessel.

**Operating and
Cleaning Limits**

Membrane Type	Polyamide Thin-Film Composite
Maximum Operating Temperature	113°F (45°C)
Maximum Operating Pressure	1,200 psig (83 bar)
Maximum Element Pressure Drop	15 psig (1.0 bar)
pH Range	
Continuous Operation	2-11
Short-Term Cleaning (30 min.) ^b	1-13
Maximum Feed Silt Density Index (SDI)	SDI5
Free Chlorine Tolerance	<0.1 ppm

- a. Maximum temperature for continuous operation above pH 10 is 95°F (35°C).
- b. Refer to [Cleaning Guidelines](#) (Form No. 45-D01696-en).
- c. Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, The Company Water Solutions recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to [Dechlorinating Feedwater](#) (Form No. 45-D01569-en) for more information.

**Important
Information**

Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system operating parameters conform to design specifications so that system water quality and productivity goals can be achieved.

Before initiating system start-up procedures, membrane pretreatment, loading of the membrane elements, instrument calibration and other system checks should be completed.

Please refer to the application information literature entitled [Start-Up Sequence](#) (Form No. 45-D01609-en) for more information.

Avoid any abrupt pressure or cross-flow variations on the spiral elements during start-up, shutdown, cleaning or other sequences to prevent possible membrane damage. During start-up, a gradual change from a standstill to operating state is recommended as follows:

- Feed pressure should be increased gradually over a 30-60 second timeframe.
- Cross-flow velocity at set operating points should be achieved gradually over 15- 20 seconds.

**Operation
Guidelines**

**General
Information**

- Keep elements moist at all times after initial wetting.
- If operating limits and guidelines given in this bulletin are not strictly followed, the limited warranty will be null and void.
- To prevent biological growth during prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution.
- The customer is fully responsible for the effects of incompatible chemicals and lubricants on elements.
- Maximum pressure drop across an entire pressure vessel (housing) is 50 psi (3.4 bar).
- Avoid static permeate-side backpressure at all times.

**Product
Stewardship**

The Company has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with The Company products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

The Company strongly encourages its customers to review both their manufacturing processes and their applications of The Company products from the standpoint of human health and environmental quality to ensure that The Company products are not used in ways for which they are not intended or tested. The Company personnel are available to answer your questions and to provide reasonable technical support. The Company product literature, including safety data sheets, should be consulted prior to use of The Company products. Current safety data sheets are available from The Company.

Please be aware of the following:

- The use of this product in and of itself does not necessarily guarantee the removal of cysts and pathogens from water. Effective cyst and pathogen reduction is dependent on the complete system design and on the operation and maintenance of the system.
- Permeate obtained from the first hour of operation should be discarded.

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