DOW™ FILMTEC™ Membranes

DOW FILMTEC **SW30XLE-400*i*** Seawater Reverse Osmosis Element with ***iLEC*** Interlocking

Features

Dow Water & Process Solutions offers various premium seawater reverse osmosis (RO) elements to reduce capital and operation cost of seawater RO systems. DOW™ FILMTEC™ products combine premium membrane performance with automated precision fabrication and maximize system output to unprecedented performance.

DOW FILMTEC SW30XLE-400*i* offers an unequalled combination of productivity and rejection. This is the lowest energy seawater element available on the market, enabling lowest operation cost. It is also ideal for two-pass seawater designs and high TDS brackish water applications. DOW FILMTEC SW30XLE-400*i* comes with the unique ***iLEC***™ Interlocking Endcaps that reduce system operating costs and reduce the risk of o-ring leaks that cause poor water quality. See Form No. 609-00446 for information on the trouble-free cost-saving benefits of ***iLEC*** Interlocking Endcaps. Benefits of SW30XLE-400*i* include:

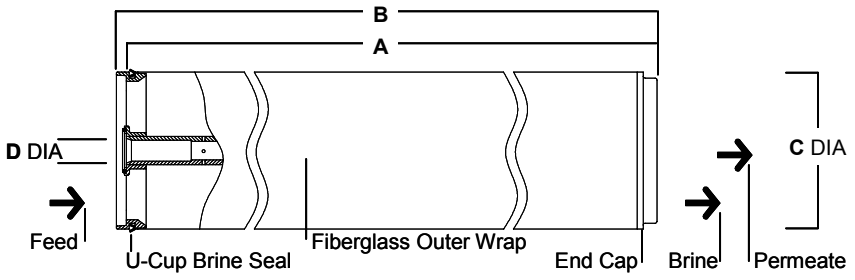
- Highest productivity available, with active area of 400 sq. ft., enables systems to be designed to deliver the lowest total cost of water by optimizing energy consumption, system productivity and operating flux.
- Can effectively be used in permeate staged seawater desalination systems without impairing the performance of the downstream stage.
- Delivers high performance over the operating lifetime without the use of oxidative post-treatments like many competitive products. This is one reason DOW FILMTEC elements are more durable and may be cleaned more effectively over a wider pH range (1-13) than other RO elements.
- Automated, precision fabrication with a greater number of shorter membrane leaves reduces the effect of overall fouling and maximizes element efficiency, lowering your cost of operation.

Product Specifications

Product	Part number	Active area ft^2 (m^2)	Maximum operating pressure psig (bar)	Permeate flow rate gpd (m^3/d)	Stabilized boron rejection %	Minimum salt rejection %	Stabilized salt rejection %
SW30XLE-400*i*	219219	400 (37)	1,200 (83)	9,000 (34)	88	99.60	99.70

1. The above values are normalized to the following conditions: 32,000 ppm NaCl, 5 ppm Boron, 800 psi (5.5 MPa), 77°F (25°C), pH 8, 8% recovery.
2. Permeate flows for individual elements may vary +/-15%.
3. Product specifications may vary slightly as improvements are implemented.
4. Active area guaranteed +/-5%. Active area as stated by FilmTec is not comparable to the nominal membrane area figure often stated by some element suppliers. Measurement method described in Form No. 609-00434

Figure 1



Product	Feed spacer (mil)	Dimensions – inches (mm) A	B	C	D
SW30XLE-400*i*	28	40 (1,016)	40.5 (1,029)	7.9 (201)	1.125 (29)

1. Refer to FilmTec Design Guidelines for multiple-element systems. 1 inch = 25.4 mm
2. Elements fit nominal 8-inch (203 mm) I.D. pressure vessel.
3. Individual ***iLEC*** elements measure 40.5 inches (1,029 mm) in length (B). The net length (A) of ***iLEC*** elements when connected is 40 inches (1,016 mm).

Operating Limits

• Membrane Type	Polyamide Thin-Film Composite
• Maximum Operating Temperature[a]	113°F (45°C)
• Maximum Element Pressure Drop	15 psig (1.0 bar)
• pH Range, Continuous Operation[a]	2 - 11
• pH Range, Short-Term Cleaning (30 min.)[b]	1 - 13
• Maximum Feed Silt Density Index (SDI)	SDI 5
• Free Chlorine Tolerance[c]	<0.1 ppm

a. Maximum temperature for continuous operation above pH 10 is 95°F (35°C).

b. Refer to Cleaning Guidelines in specification sheet 609-23010.

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. FilmTec recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to technical bulletin 609-22010 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. 609-02077) for more information.

Operation Guidelines

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 time frame.
- Cross-flow velocity at set operating point should be achieved gradually over 15-20 seconds.
- Permeate obtained from first hour of operation should be discarded.

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.

Notice: 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.

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