FILMTEC Membranes

8" BW30LE-440 High Surface Area Low-Energy Brackish Water RO Element

Features

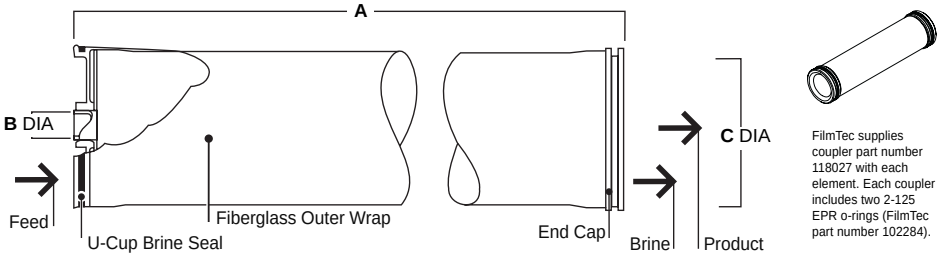
The FILMTEC™ BW30LE-440 element has a nominal active membrane area of 440 square feet (41 m^2) and an average permeate flow of 11,500 gpd (44 m^3/d) at 150 psi under standard conditions as noted below. External element dimensions are identical to those of conventional 8" elements; however, the I.D. of the product water tube is slightly larger (see Dimension B below). Optimizing membrane chemistry results in lower pressure operation than the FILMTEC BW30-400, which means system operating economy is enhanced. Because the high productivity of the FILMTEC BW30LE-440 element results from increased surface area and increased element efficiency, the rate of membrane fouling remains low. This means higher flow rates can be sustained over time and element service life is prolonged. The productivity advantages of the FILMTEC BW30LE-440 element can be employed in the design of new systems that produce the desired flow rate while operating at significantly lower feed pressures which can result in savings due to lower energy consumption and fewer pumps. The high surface area of the FILMTEC BW30LE-440 element permits designs of new RO systems that meet productivity targets with fewer elements than standard 8-inch elements resulting in lower installed system cost by reducing the number of system components and lower installation expense.

Product Specifications

Product	Nominal Active Surface Area ft^2 (m^2)	Product Water Flow Rate gpd (m^3/d)	Stabilized Salt Rejection Cl^- (%)
BW30LE-440	440 (41)	11,500[1] (44)	99.0

1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm NaCl, 150 psi (1.0 MPa), 77°F (25°C), pH 8 and 15% recovery.
2. Flow rates for individual elements may vary but will be no more than 15% below the value shown.
3. Sales specifications may vary as design revisions take place.
4. Minimum salt rejection for individual element is 98.0%.

Figure 1



Product	Typical Recovery Rate (%)	Dimensions – Inches (mm) A	B	C
BW30LE-440	15	40.0 (1,016)	1.5[3] (38)	7.9 (201)

1. Typical recovery rate shown is for a single element. Recovery rate is calculated by dividing permeate flow rate by feed flow rate.
2. Refer to FilmTec Design Guidelines for multiple-element applications and recommended element recovery rates for various feed sources.
3. Element to fit nominal 8.00-inch (203 mm) I.D. pressure vessel.

1 inch = 25.4 mm

* Trademark of The Dow Chemical Company

Operating Limits

• Membrane Type	Polyamide Thin-Film Composite
• Maximum Operating Temperature	113°F (45°C)
• Maximum Operating Pressure	600 psig (41 bar)
• Maximum Pressure Drop	15 psig (1.0 bar)
• pH Range, Continuous Operation[a]	2 – 11
• pH Range, Short-Term Cleaning (30 min.)[b]	1 – 12
• Maximum Feed Flow	85 gpm (19 m^3/hr)
• Maximum Feed Silt Density Index	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. 609-00298) 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 permeate-side backpressure at all times.

FILMTEC Membranes
For more information about FILMTEC membranes, call the Dow Liquid Separations business:
North America: 1-800-447-4369
Latin America: (+55) 11-5188-9277
Europe: (+32) 3-450-2240
Japan: (+81) 3-5460-2100
Australia: (+61) 3-9226-3545
http://www.filmtec.com

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.

Notice: No freedom from any patent owned by Seller or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer’s use and for ensuring that Customer’s workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Seller assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

*Trademark of The Dow Chemical Company