

FILMTEC Membranes

8" BW30-400 High Surface Area Brackish Water RO Element

The FILMTEC® BW30-400 element has a nominal active membrane area of 400 square feet (37 m²) and an average permeate flow of 10,500 gpd (40 m³/d) under standard conditions, yet external element dimensions are identical to those of conventional 8" elements. Because the high productivity of the FILMTEC BW30-400 element results from increased surface area and increased element efficiency

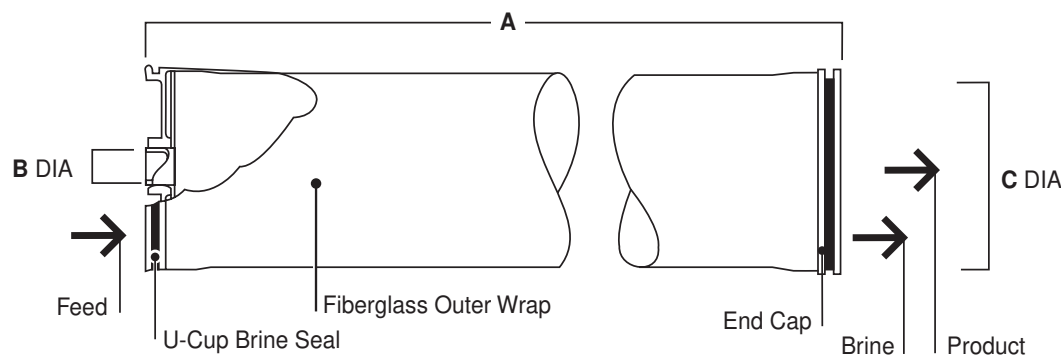
instead of from the use of higher flux membrane or elevated feed pressure, the rate of membrane fouling remains low. This means higher flow rates can be sustained over time and element service life is prolonged. Lower pressure operation also means system operating economy is enhanced. The high surface area of the FILMTEC BW30-400 element permits design of new RO systems that meet productivity

targets with fewer elements. This can mean more compact systems and significantly lower system component and installation expense. The productivity advantages of the FILMTEC BW30-400 element can also be employed in the design of new systems that produce the desired gpd (m³/d) while operating at lower feed pressures.

Product Specifications

Product	Nominal Active Surface Area ft ² (m ²)	Product Water Flow Rate gpd (m ³ /d)	Stabilized Salt Rejection Cl ⁻ (%)
BW30-400	400 (37)	10,500 (40)	99.5

1. Permeate flow and salt rejection based on the following standard conditions: 2000 ppm NaCl, 225 psi (1.6 MPa), 77°F (25°C), pH 8, and 15% recovery.
2. Flow rates for individual elements may vary but will be no more than 7% below the value shown.
3. Minimum salt rejection for individual elements is 98.0%.



Operating Limits

Membrane Type	Thin-Film Composite
Maximum Operating Pressure	600 psi (4.1 MPa)
Maximum Operating Temperature	113°F (45°C)
Maximum Feed Turbidity	1 NTU
Free Chlorine Tolerance	<0.1 ppm
pH Range, Continuous Operation	2–11
pH Range, Short-Term Cleaning (30 min.)	1–12
Maximum Feed Flow	85 gpm (19 m ³ /h)
Maximum Feed Silt Density Index	SDI 5

Product	Single-Element Recovery (Permeate Flow to Feed Flow)	Dimensions – Inches (mm)		
		A	B	C
BW30-400	0.15	40 (1,016)	1.125 (29)	7.9 (201)

4. Consult the most recent DESIGN GUIDELINES for multiple-element applications and recommended element recovery rates for various feed sources.
5. Element to fit 8.00-inch (203 mm) I.D. pressure vessel.

1 inch = 25.4 mm

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For more information about FILMTEC membranes, call Dow Liquid Separations business:

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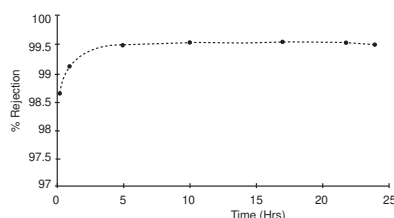
<http://www.dow.com/liquidseps>

Stabilized Salt Rejection

The minimum salt rejection specifications set by FilmTec were established primarily for quality assurance (QA) purposes to ensure the integrity of each element we produce. A stabilized salt rejection specification is provided as a supplement to the minimum specification to provide a more useful basis for projecting actual system performance.

This stabilized salt rejection specification is based on laboratory salt challenge tests conducted under the same basic conditions as the minimum salt rejection test. However, the duration of the test is extended to allow the membrane to reach a stabilized wet condition to better simulate long-term rejection characteristics. Extensive field testing has shown that, when FILMTEC elements reach a stabilized condition after initial system startup, their salt rejection performance exceeds the conservative numbers generated by our QA tests. This higher level of salt rejection remains highly consistent over time as shown in Figure 1. Although even this extended stabilized salt rejection test cannot take into account the many system variables FILMTEC elements may encounter in the field, it produces a salt rejection number that is a useful starting point for projecting the performance of FILMTEC elements in your system.

Figure 1. Stabilized salt rejection performance of FILMTEC elements after system startup



To learn more about the importance of stabilized salt rejection in selecting membrane elements, request the brochure "Understanding RO Element Salt Rejection Specifications". Call your local Dow area listed above and request Form No. 609-00154 (CH 172-113-E). Also ask for information about our ROSA (Reverse Osmosis System Analysis) computer program. Developed by the Liquid Separations business of The Dow Chemical Company, the ROSA program uses specific information about your system to simulate its operation and to provide an accurate picture of what you can expect from FILMTEC elements for the life of the elements under real-life conditions. Data provided by the ROSA program allow you to make element selection decisions based on system-specific information instead of relying on generalized specification numbers derived from QA or laboratory tests.

Important Operating Information

1. Keep elements moist at all times after initial wetting.
2. If operating specifications given in this Product Information bulletin are not strictly followed, the limited warranty will be null and void.
3. Permeate obtained from first hour of operation should be discarded.
4. To prevent biological growth during storage, shipping or system shutdowns it is recommended that FILMTEC elements be immersed in a protective solution. The standard storage solution contains 1.5 percent (by weight) sodium metabisulfite (food grade).
5. Elements must be in use for at least six hours before formaldehyde is used as a biocide. If the elements are exposed to formaldehyde before being in use for this period of time, a loss in flux may result.
6. The membrane shows some resistance to short-term attack by chlorine (hypochlorite). Continuous exposure, however, may damage the membrane and should be avoided.
7. The customer is fully responsible for the effects of incompatible chemicals on elements. Their use will void the element limited warranty.

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.

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