



DOW FILMTEC™ Membranes

DOW FILMTEC BW30XFR-400/34/High Durability, Organic Fouling Resistant Brackish Water RO Element with *ILEC*™ Technology

Benefits

DOW FILMTEC™ BW30XFR-400/34/ has an optimized design and materials of construction to create a durable, high rejection and high productivity element to purify waters with biological and organic fouling tendencies. Incorporating Dow's innovative and proprietary BW30XFR membrane sheet with advanced organic fouling resistance and cleanability, this reverse osmosis (RO) element combines the best features of fouling resistance and durability, with the cleanability of an optimized 34 mil feed spacer, to improve cleaning effectiveness. All this while delivering high element performance over the life of the spiral wound brackish water RO element.

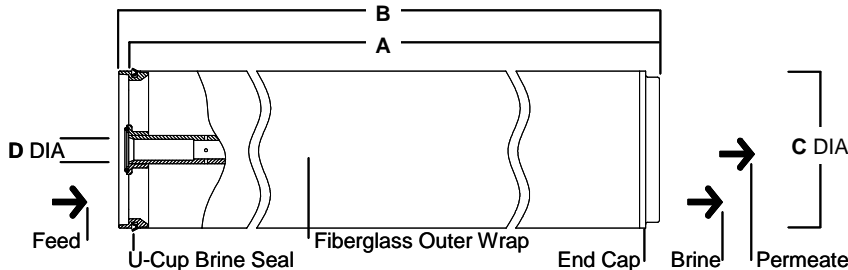
- Effective and efficient cleaning of biofilm, organic compounds and scale, achieved through the widest pH cleaning range (pH 1 – 13), made possible by the most advanced DOW FILMTEC™ RO membrane sheet available today.
- Produces 10 percent more water compared to the BW30-400/34i or BW30-400/34i FR element at the same operating pressure and higher rejection, enabling lower capital expense for new systems, or increased water production in an existing system.
- Enhanced cleaning effectiveness, reducing the impact of fouling and through the use of an optimized 34 mil feed spacer.
- Reliable system integrity, resulting in reduced system operating costs with the *ILEC*™ technology (interlocking end-caps), minimizing the risk of o-ring leaks that can contribute to poor water quality.

Product Specifications

Product	Part number	Active area ft ² (m ²)	Feed spacer thickness (mil)	Permeate flow rate gpd (m ³ /d)	Stabilized salt rejection (%)	Minimum salt rejection (%)
BW30XFR-400/34/	315924	400 (37)	34	11,500 (43)	99.65	99.4
	Solute		NH₄⁺	NO₃⁻	SiO₂	Boron
	Stabilized rejection (%)		98.8	98.2	99.8	80.0

1. Permeate flow and salt (NaCl) rejection based on the following standard test conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), 77°F (25°C), pH 8 and 15% recovery.
2. Flow rates for individual elements may vary but will be no more than +/- 15%.
3. Sales specifications may vary as design revisions take place.
4. Active area guaranteed +/-3%. Active area as stated by Dow Water & Process Solutions is not comparable to nominal membrane area often stated by some manufacturers. Measurement method described in Form No. 609-00434.
5. Specific solute stabilized rejections based on the following standard test conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), 77°F (25°C), pH 7 and 15% recovery.

Figure 1.



Dimensions – inches (mm)

Product	A	B	C	D
BW30XFR-400/34/	40.0 (1,016)	40.5 (1,029)	7.9 (201)	1.125 ID (29)

1. Refer to Dow Water & Process Solutions Design Guidelines for multiple-element applications. 1 inch = 25.4 mm
2. Element to fit nominal 8-inch (203 mm) I.D. pressure vessel.
3. Individual elements with *ILEC* endcaps measure 40.5 inches (1,029 mm) in length (B). The net length (A) of the elements when connected is 40.0 inches (1,016 mm).

Operating Limits

• Membrane Type	Polyamide Thin-Film Composite
• Maximum Operating Temperature ^a	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 - 13
• 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, Dow Water & Process Solutions 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 drops are 15 psi (1.0 bar) per element or 50 psi (3.4 bar) per multi element pressure vessel (housing) whichever value is more limiting.
- Avoid static permeate-side backpressure at all times.

Regulatory Note

These membranes may be subject to drinking water application restrictions in some countries; please check the application status before use and sale.

DOW FILMTEC™ Membranes

For more information about DOW FILMTEC membranes, call the Dow Water & Process Solutions business:

North America: 1-800-447-4369
Latin America: (+55) 11-5188-9222
Europe: (+32) 3-450-2240
Pacific: +60 3 7958 3392
Japan: +813 5460 2100
China: +86 21 2301 9000

<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.

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