FILMTEC Membranes

FILMTEC BW30-400-FR High Productivity Fouling Resistant RO Element

Designed to purify water with high biological or organic fouling potential in systems with well-controlled pretreatment, FILMTEC™ BW30-400-FR reverse osmosis elements incorporate Dow's proprietary FR membrane technology that provides superior fouling resistance and cleanability. This product is an extension of the FILMTEC BW30-365-FR element that has demonstrated its value for numerous customers around the world. The BW30-400-FR element features:

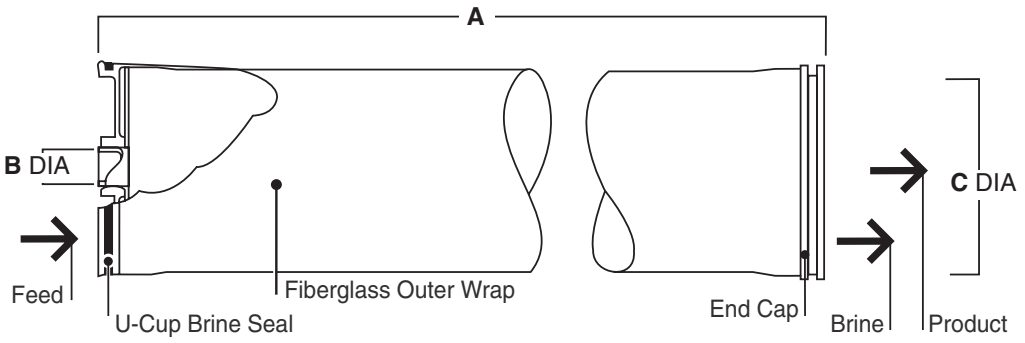
- High active area (400 square feet) for more productivity without increasing the operating flux.
- High rejection FILMTEC RO membrane that has the widest pH cleaning range in the industry (pH 1-12) that allows for effective cleaning of scale, organic compounds and biofilm.
- Automated, precision fabrication with a greater number of shorter membrane leaves, reduces the overall effect of fouling and maximizes membrane efficiency.

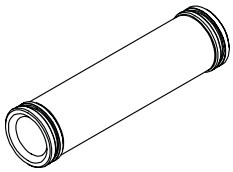
These features offer system operators the best long-term economics and most trouble-free operation for RO membrane purification of fouling waters.

Product Specifications

Product	Part Number	Active Area ft^2 (m^2)	Applied Pressure psig (bar)	Permeate Flow Rate, gpd (m^3/d)	Stabilized Salt Rejection (%)
BW30-400-FR	202681	400 (37)	225 (15.5)	10,500 (40)	99.5

1. Permeate flow and salt rejection based on the following test conditions: 2000 ppm NaCl, pressure specified above, 77°F (25°C), pH 8 and 15% recovery.
2. Permeate flow rates for individual elements may vary but will be no more than 7% below the value specified above.
3. Minimum initial salt rejection is 98.0%.
4. Product specifications may vary slightly as improvements are implemented.
5. Feed spacer is 28 mil.





FilmTec supplies coupler part number 103971 with each element. Each coupler includes two 3-912 EPR o-rings, FilmTec part number 151705.

Product	Dimensions – Inches (mm) A	B	C
BW30-400-FR	40.0 (1016)	1.125 (29)	7.9 (201)

6. Refer to FilmTec Design Guidelines for multiple-element systems.
7. BW30-400-FR fits nominal 8-inch (203 mm) I.D. pressure vessel.

1 inch = 25.4 mm

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 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.

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For more information about FILMTEC membranes,
call the Dow Liquid Separations business:
North America 1-800-447-4369
Latin America . . . . . .(+55) 11-5188-9277
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http://www.filmtec.com

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 “How to Start Up an RO Membrane System” (Form No. 609-00070) 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-backpressure at all times.

Published July 2002.

Form No. 609-00391-702QRP