



## DOW FILMTEC™ FORTILIFE™ CR100

Highly Durable, Contaminant Resistant, Biofouling Resistant, Brackish Water RO Element

### Description

The DOW FILMTEC™ FORTILIFE™ product family offers industrial users a reliable and highly efficient option to help solve highly difficult water challenges, such as wastewater reuse and minimal liquid discharge.

The DOW FILMTEC™ FORTILIFE™ CR100 element is one of the industry's most advanced fouling resistant element technology specially designed to provide relief from biological fouling. The element's ultra low differential pressure (Figure 1) provides improved hydraulic balance (more even distribution of flux across all the elements in the system) in a biological fouling environment such as wastewater treatment. This product also boasts a reliable and durable membrane chemistry, providing organic fouling resistance, cleanability, low energy operation, and excellent solute rejection.

With FORTILIFE™ CR100, an end user that performs frequent cleanings due to biofouling, typically indicated by a rapid increase of the 1<sup>st</sup> stage differential pressure, can expect<sup>1</sup>:

- Up to 50% reduction in the number of cleanings
- More effective and efficient cleaning of biofilm, organic compounds and scale, achieved through the widest pH range in cleaning (pH 1 – 13), made possible by the most advanced DOW FILMTEC™ RO membrane sheet available today
- Up to 10% energy savings at the same water productivity

<sup>1</sup>Relative to leading fouling resistant products currently available in the market

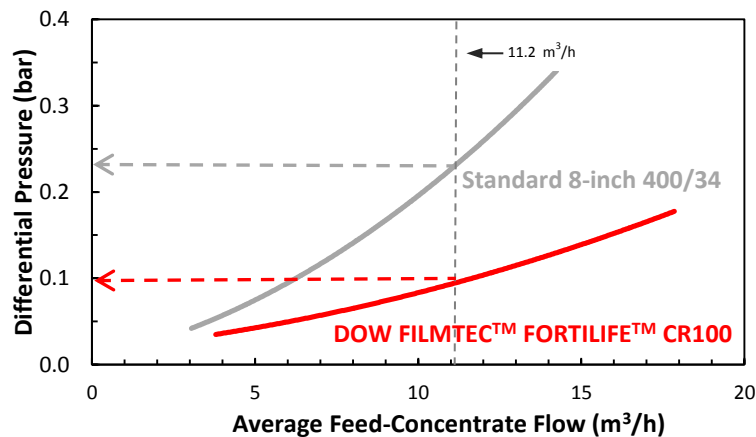


Figure 1. Element differential pressure as a function of flow rate for FORTILIFE™ CR100 vs. standard elements

### Product Type

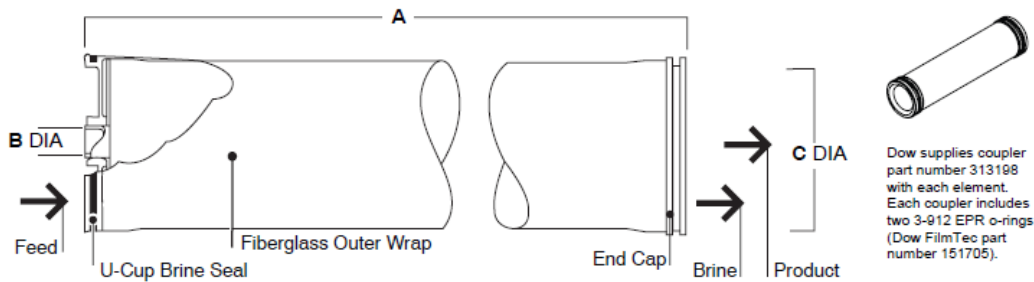
Spiral-wound element with polyamide thin-film composite membrane

## Product Specifications

DOW FILMTEC™ Element	Active Area ft <sup>2</sup> (m <sup>2</sup> )	Permeate Flow Rate gpd (m <sup>3</sup> /d)	Minimum Salt Rejection (%)	Stabilized Salt Rejection (%)	Element dP typical (bar) <sup>5</sup>
FORTILIFE™ CR100	400 (37)	11,500 (44)	99.4	99.7	0.1

1. Permeate flow and salt (NaCl) rejection is 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. Element dP (differential pressure) is a typical value for an element operated with a permeate flow of 11,500 gpd and 15% recovery (average feed-concentrate flow: 11.2 m<sup>3</sup>/h)

**Figure 2**



DOW FILMTEC™ Element	Feed Spacer (mil)	A inch (mm)	B inch (mm)	C inch (mm)
FORTILIFE™ CR100	34	40.0 (1,016)	1.125 ID (29)	7.9 (201)

1. Refer to Dow Water & Process Solutions Design Guidelines for multiple-element applications
2. Element to fit nominal 8-inch (203 mm) I.D. pressure vessel

## Operating Limits

Membrane Type	Polyamide Thin-Film Composite
Maximum Operating Temperature <sup>a</sup>	113 °F (45 °C)
Maximum Operating Pressure	600 psig (41 bar)
Maximum Element Pressure Drop	15 psig (1.0 bar)
pH Range, Continuous Operation <sup>a</sup>	2 - 11
pH Range, Short-Term Cleaning (30 min.) <sup>b</sup>	1 - 13
Maximum Feed Silt Density Index (SDI)	SDI 5
Free Chlorine Tolerance <sup>c</sup>	< 0.1 ppm

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

b. Refer to guidelines in "[Cleaning Procedures](#)" for more information.

c. Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature failure. Since oxidation damage is not covered under warranty, Dow recommends removing residual free.

## **Additional Important Information**

Before use or storage, review these additional resources for important information:

- [Usage Guidelines for DOW FILMTEC™ 8" Elements](#)
- [System Operation: Initial Start-Up](#)
- [Handling, Preservation and Storage](#)

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.

Please refer to the product technical manual.

## **Product Stewardship**

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

## **Customer Notice**

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support.

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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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