FILMTEC Membranes

FILMTEC SW30HR-320 Seawater Reverse Osmosis Element

Features

FilmTec offers various premium seawater reverse osmosis (RO) elements to reduce capital and operation cost of seawater RO systems. FILMTEC™ products combine premium membrane performance with automated precision fabrication and maximize system output to unprecedented performance.

FILMTEC SW30HR-320 is a high productivity, very high rejection element designed to lower component economics. This element is also effective in treating high fouling feedwaters.

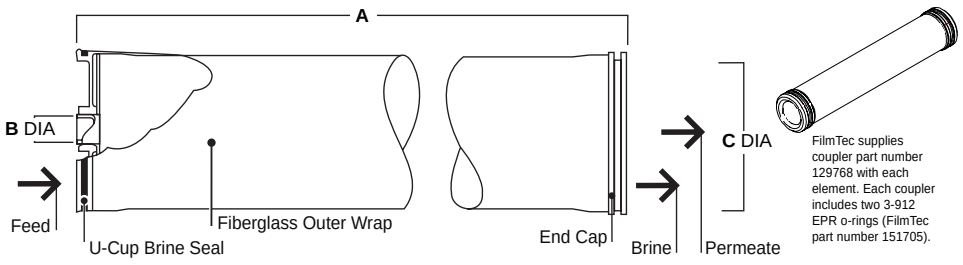
- FILMTEC SW30HR-320 can effectively be used in permeate staged seawater desalination systems without impairing the performance of the downstream stage.
- FILMTEC SW30HR-320 features a 34 mil feed spacer, alleviating the impact of fouling on pressure drop across a vessel and enhances cleaning capability.
- FILMTEC SW30HR-320 delivers high performance over the operating lifetime without the use of oxidative post-treatments like many competitive products. This is one reason FILMTEC elements are more durable and may be cleaned more effectively over a wider pH range (1-12) than other RO elements.
- Automated, precision fabrication reduces element variability, increases reliability and maximizes element effeciency, lowering your cost of operation.

Product Specifications

Product	Part Number	Active Area ft² (m²)	Maximum Operating Pressure psig (bar)	Permeate Flow Rate gpd (m³/d)	Stabilized Boron Rejection %	Minimum Salt Rejection %	Stabilized Salt Rejection %
SW30HR-320	231995	320 (30)	1,200 (83)	6,000 (23)	90	99.60	99.75

1. The above benchmark values are based on the following test conditions: 32,000 ppm NaCl, 5 ppm Boron, 800 psi (5.5 MPa), 77°F (25°C), pH 8, 8% recovery.
2. Permeate flows for individual elements may vary +/-15%.
3. Product specifications may vary slightly as improvements are implemented.
4. Active area as stated by FilmTec is not comparable to the nominal active area figure often stated by other element suppliers. Measurement method described in Form No. 609-00434.

Figure 1



Product	Feed Spacer (mil)	Dimensions – Inches (mm) A	B	C
SW30HR-320	34	40 (1,016)	1.125 (29)	7.9 (201)

1. Refer to FilmTec Design Guidelines for multiple-element systems.
2. Elements fit nominal 8-inch (203 mm) I.D. pressure vessel.

1 inch = 25.4 mm

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Operating Limits

• Membrane Type	Polyamide Thin-Film Composite
• Maximum Operating Temperature	113°F (45°C)
• Maximum Element Pressure Drop	13 psig (0.9 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.

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 static permeate-side backpressure at all times.

FILMTEC Membranes
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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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