Product Data Sheet

FilmTec™ Membranes

FilmTec™ NF270 Nanofiltration Elements for Commercial Systems

Description

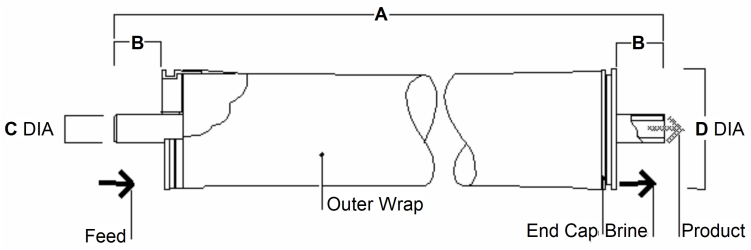
The FilmTec™ NF270 Nanofiltration Elements are ideal for removing a high percentage of TOC and THM precursors with medium to high salt passage and medium hardness passage. The FilmTec™ NF270 Membrane is an ideal choice for surface water and ground water where good organic removal is desired with partial softening.

Typical Properties

Product	Part Number	Active Area ft^2 (m^2)	Applied Pressure psig (bar)	Permeate Flow Rate gpd (m^3/d)	Stabilized Salt Rejection (%)
NF270-2540	149986	28 (2.6)	70 (4.8)	850 (3.2)	>97.0
NF270-4040	149987	82 (7.6)	70 (4.8)	2,500 (9.5)	>97.0

1. Permeate flow and salt rejection based on the following test conditions: 2,000 ppm $MgSO_4$, 77°F (25°C) and 15% recovery at the pressure specified above.
2. Permeate flows for individual NF270-2540 elements may vary by -20% / +30%. NF270-4040 individual elements may vary -15% / +50%.
3. Developmental products available for sale.

Element Dimensions



FilmTec sells coupler part number 89055 for use in multiple element housings. Each coupler includes two 2-210 EPR o-rings, FilmTec part number 89255.

	Dimensions – Inches (mm)			1 inch = 25.4 mm
Product	**A**	**B**	**C**	**D**
NF270-2540	40.0 (1,016)	1.19 (30)	0.75 (19)	2.4 (61)
NF270-4040	40.0 (1,016)	1.05 (27)	0.75 (19)	3.9 (99)

1. Refer to FilmTec™ Design Guidelines for multiple-element systems of midsize elements (Form No. 45-D01588-en).
2. NF270-2540 has a tape outer wrap. NF270-4040 has a fiberglass outer wrap.

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Operating and Cleaning Limits

Membrane Type	Polyamide Thin-Film Composite
Maximum Operating Temperature	113°F (45°C)
Maximum Operating Pressure	600 psi (41 bar)
Maximum Feed Flow Rate	
4040 elements	16 gpm (3.6 m^3/hr)
2540 elements	6 gpm (1.4 m^3/hr)
Maximum Pressure Drop	
tape wrapped	13 psig (0.9 bar)
fiberglassed	15 psig (1.0 bar)
pH Range	
Continuous Operation[a]	2 - 11
Short-Term Cleaning (30 min.)[b]	1 - 12
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 (Form No. 45-D01696-en) for NF90.
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, DuPontWater Solutions recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to FilmTec™ Design Guidelines for multiple-element systems of 8-inch elements (Form No. 45-D01695-en) 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. 45-D01609-en) 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.

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 30 psi (2.1 bar).
- Avoid static permeate-side backpressure at all times.

Product Stewardship

DuPont 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 DuPont products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

DuPont strongly encourages its customers to review both their manufacturing processes and their applications of DuPont products from the standpoint of human health and environmental quality to ensure that DuPont products are not used in ways for which they are not intended or tested. DuPont personnel are available to answer your questions and to provide reasonable technical support. DuPont product literature, including safety data sheets, should be consulted prior to use of DuPont products. Current safety data sheets are available from DuPont.

Please be aware of the following:

- 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.
- Permeate obtained from the first hour of operation should be discarded.

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Have a question? Contact us at:

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