



Product Data Sheet

FilmTec™ Reverse Osmosis Membranes

Desalting Nanofiltration Elements for Process Streams

Description

FilmTec™ NF membrane elements are designed for process applications where a separation of solutes is desired.

- NF is a durable polypiperazine amide membrane designed to reject organics with a molecular weight above 200 while passing monovalent salts.
- FilmTec™ NF membrane elements are used in a variety of applications such as desalting organic compounds, acid processing, metal recovery and antifreeze recovery.
- FilmTec™ NF membrane elements replace discontinued NF45 elements.

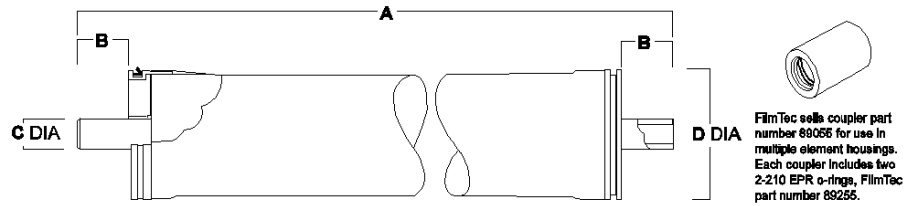
Typical Properties

FilmTec™ Membrane	Part Number	Active Area	
		(ft ²)	(m ²)
NF-2540	151538	28	2.6
NF-4040	151543	82	7.6
NF-400 (8040 style)	151544	400	37.2

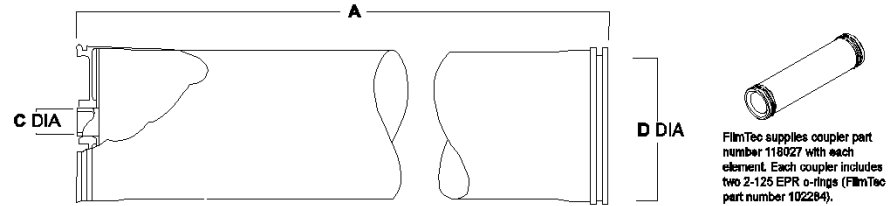
1. Permeate flow and salt rejection based on the following test conditions: 2,000 ppm MgSO₄, 130 psig (8.9 bar), 77°F (25°C), pH 8 and 15% recovery.
2. Target water flow rates for new elements are: NF-2540 – 920 gpd (3.5 m³/d), NF-4040 – 3,050 gpd (11.5 m³/d), NF-400 – 13,700 gpd (51.9 m³/d).
3. Minimum MgSO₄ rejection is 98.0%. Stabilized rejection is >99%.
4. Product specifications may vary slightly as improvements are implemented.

Element Dimensions

2540 and 4040 styles



8040 style



	Maximum feed flow rate	Typical recovery rate	A	B	C	D
FilmTec™ Membranes	gpm (m ³ /h)	%	in. (mm)	in. (mm)	in. (mm)	in. (mm)
NF-2540	6 (1.4)	15	40.00 (1,016)	1.19 (30.2)	0.75 (19)	2.4 (61)
NF-4040	16 (3.6)	15	40.00 (1,016)	1.05 (25.7)	0.75 (19)	3.9 (99)
NF-400 (8040 style)	70 (16)	15	40.00 (1,016)	-	1.13 (28.6)	7.9 (200)

1. Typical recovery rate shown is for a single element. Recovery rate is calculated by dividing permeate flow rate by feed flow rate.
2. NF-2540 elements have a tape outerwrap. NF-2540 elements fit nominal 2.5 inch I.D. pressure vessel.
3. NF-4040 elements have a fiberglass outerwrap. NF-4040 elements fit nominal 4 inch I.D. pressure vessel.
4. NF-400 elements have a fiberglass outerwrap. NF-400 elements fit nominal 8 inch I.D. pressure vessel.

Operating and Cleaning Limits

Membrane type	Polypiperazine amide thin-film composite
Maximum Operating Pressure	600 psig (41 bar)
Maximum Operating Temperature ^a	113°F (45°C)
Maximum Pressure Drop	15 psig (1.0 bar)
pH Range, continuous operation	3-10
pH Range, short-term cleaning ^b	1-12
Free Chlorine Tolerance ^c	Below Detectable Limits
Hydrogen Peroxide Limit, Cont. Operation (@ 77°F/25°C max.)	20 ppm
Hydrogen Peroxide Limit, Short-term sanitizing (@77°F/25°C max.)	1,000 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).
- 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, DuPont Water Solutions recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to [Dechlorinating Feedwater](#) (Form No. 45-D01569) for more information.

Additional Important Information

Depending on the application requirements, new NF spiral elements may be cleaned prior to initial use. The cleaning procedure should be based on the application for which the elements are to be used. If cleaning with formulated agents is not available, an alkaline wash with wetting agent is recommended prior to initial use.

An appropriate alkaline wash consists of the following:

- Flushing with water (ensure water quality meets guidelines found in [Cleaning Guidelines](#) (Form No. 45-D01865-en)
- Heating water to 113°F (45°C) in recirculation mode.
- Adding 0.2% Na-EDTA and NaOH to pH 11 and recirculating for 30 minutes.
- Flushing with water until neutral pH is obtained.

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

- [Usage Guidelines for FilmTec™ 8" Elements](#) (Form No. 45-D01706-en)
- [Start-Up Sequence](#) (Form No. 45-D01609-en)

General Information

- Keep elements moist at all times after initial wetting.
- To prevent biological growth during system shutdowns, it is recommended that elements be immersed in a preservative solution.

Have a question? Contact us at:

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