



FILMTEC™ Membranes

Nanofiltration Elements Available for Pilot Testing

For pilot testing, the following nanofiltration elements are available.

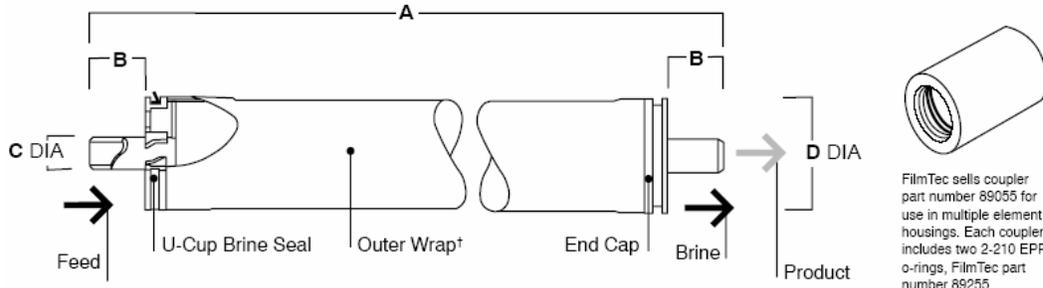
Product	Application
NF200	Medium to high salt passage, medium calcium passage (50-65%), high atrazine rejection (95%) and high TOC rejection.
NF270	High salt passage, medium calcium passage (40-60%) and high TOC removal.
NF90	High salt removal (90%), high iron removal, pesticide, herbicide removal and TOC removal.

Product Specifications

Product	Nominal Active Surface Area (ft ² (m ²))	GMID	Product Water (gpd)	Flow Rate (L/h)	Solute Passage (%)	Atrazine Passage (%)
NF200-2540	28 (2.6)	89592				
CaCl ₂			550	86.7	50-65	< 7
MgSO ₄			460	72.5	< 3	
NF200-4040	82 (7.6)	89198				
CaCl ₂			1,600	252.3	50-65	< 7
MgSO ₄			1,350	212.9	< 3	
NF270-2540	28 (2.6)	149986				
CaCl ₂			1,000	157.7	40-60	
MgSO ₄			850	134	< 3	
NF270-4040	82 (7.6)	149987				
CaCl ₂			2,925	461.3	40-60	
MgSO ₄			2,500	394.3	< 3	
NF90-2540	28 (2.6)	149982				
NaCl			525	82.8	5-15	
MgSO ₄			600	94.6	< 3	
NF90-4040	82 (7.6)	149983				
NaCl			1,400	220.8	5-15	
MgSO ₄			1,850	291.7	< 3	

- Permeate flow and salt rejection based on the following test conditions:
 500 ppm CaCl₂, 70 psi (0.5 MPa), 77°F (25°C) and 15% recovery.
 2,000 ppm MgSO₄, 70 psi (0.5 MPa), 77°F (25°C) and recovery as indicated below.
 2,000 ppm NaCl, 70 psi (0.5 MPa), 77°F (25°C) and recovery as indicated below
- Flow rates for individual elements may vary +/- 25%.

Figure 1



Product	Single Element Recovery	Dimensions – Inches (mm)			
		A	B	C	D
2540 Configuration ⁵	15%	40 (1,016)	1.19 (30)	0.75 (19)	2.401 (61)
4040 Configuration ⁶	15%	40 (1,016)	1.05 (27)	0.75 (19)	3.913 (99.4)

- Consult the most recent Design Guidelines for multiple element applications and recommended element recovery rates for various feed sources.
 - Element to fit 2.45-inch (62 mm) I.D. pressure vessel.
 - Element to fit 4.00-inch (102 mm) I.D. pressure vessel.
- † Tape outer wrap for 2540 configuration and fiberglass outer wrap for 4040 configuration.

Operating Limits

• Membrane Type	Polyamide Thin-Film Composite
• Maximum Operating Pressure	600 psig (41 bar)
• Maximum Operating Temperature ^a	104°F (40°C)
• Free Chlorine Tolerance ^a	< 0.1 ppm
• pH Range, Continuous Operation ^b	2 - 11
• pH Range, Short-term Cleaning (30 min.) ^c	1 - 12
• Maximum Feed Flow	
2540	6 gpm (1.4 m ³ /h)
4040	16 gpm (3.6 m ³ /h)
• Maximum Feed Silt Density Index	SDI 5

^a 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.

^b Maximum temperature for continuous operation above pH 10 is 95°F (35°C).

^c Refer to Cleaning Guidelines in specification sheet 609-23010.

Important Operating Information

1. Keep elements moist at all times after initial wetting.
2. If operating specifications given in this Product Information bulletin are not strictly followed, the limited warranty will be null and void.
3. Permeate obtained from first hour of operation should be discarded.
4. To prevent biological growth during storage, shipping or system shutdowns it is recommended that FILMTEC™ elements be immersed in a protective solution. The standard storage solution contains 1.5 percent (by weight) sodium metabisulfite (food grade).
5. Elements must be in use for at least six hours before formaldehyde is used as a biocide. If the elements are exposed to formaldehyde before being in use for this period of time, a loss in flux may result.
6. The membrane shows some resistance to short-term attack by chlorine (hypochlorite). Continuous exposure, however, may damage the membrane and should be avoided.
7. The customer is fully responsible for the effects of incompatible chemicals on elements. Their use will void the element limited warranty.

Warranty Terms

These products are covered by a 12 month materials and workmanship warranty and a 3 year pro-rated warranty.

GMID

Dow Global Material Identification number (FilmTec part number).

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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