**FILMTEC™ Membranes**

**FILMTEC NF270-4040 Nanofiltration Elements for Commercial Systems**

**Features**

The FILMTEC™ NF270 membrane 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.

**Product Specifications**

<table>
<thead>
<tr>
<th>Product</th>
<th>Part Number</th>
<th>Active Area ft² (m²)</th>
<th>Applied Pressure psig (bar)</th>
<th>Permeate Flow Rate gpd (m³/d)</th>
<th>Stabilized Salt Rejection (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NF270-2540</td>
<td>149986</td>
<td>28 (2.6)</td>
<td>70 (4.8)</td>
<td>850 (3.2)</td>
<td>&gt;97.0</td>
</tr>
<tr>
<td>NF270-4040</td>
<td>149987</td>
<td>82 (7.6)</td>
<td>70 (4.8)</td>
<td>2,500 (9.5)</td>
<td>&gt;97.0</td>
</tr>
</tbody>
</table>

1. Permeate flow and salt rejection based on the following test conditions: 2,000 ppm MgSO₄, 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.

**Operating 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 m³/hr)
  - 2540 elements: 6 gpm (1.4 m³/hr)
- **Maximum Pressure Drop**
  - tape wrapped: 13 psig (0.9 bar)
  - fiberglass: 15 psig (1.0 bar)
- **pH Range, Continuous Operation**
  - A: 2 - 11
  - B: 1 - 12
- **Maximum Feed Silt Density Index**: SDI 5
- **Free Chlorine Tolerance**
  - C: < 0.1 ppm

**Figure 1**

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)**

<table>
<thead>
<tr>
<th>Product</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>NF270-2540</td>
<td>40.0 (1,016)</td>
<td>1.19 (30)</td>
<td>0.75 (19)</td>
<td>2.4 (61)</td>
</tr>
<tr>
<td>NF270-4040</td>
<td>40.0 (1,016)</td>
<td>1.05 (27)</td>
<td>0.75 (19)</td>
<td>3.9 (99)</td>
</tr>
</tbody>
</table>

1. Refer to FilmTec Design Guidelines for multiple-element systems.
2. NF270-2540 has a tape outer wrap. NF270-4040 has a fiberglass outer wrap.
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. 609-02077) 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.

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.

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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