Dairy-Pro® RO and NF Polishing Elements
Reverse Osmosis and Nanofiltration 8” Sanitary Element

PRODUCT DESCRIPTION

Membrane Chemistry: Proprietary TFC® polyamide

Membrane Type: RO - high rejection reverse osmosis
                 NF-200 - selective rejection nanofiltration

Construction: Sanitary spiral wound elements with net outerwrap and attached ATD’s with two BAND-TITE® reinforcement straps

                  Halal-certified by the Islamic Food and Nutrition Council of America (IFANCA). All spiral element components in contact with the process fluid have passed USP Class VI guidelines.

NOMINAL PERFORMANCE

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Model</th>
<th>Feed Spacer mil (mm)</th>
<th>Active Membrane Area ft² (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8882260</td>
<td>8040-RO-30</td>
<td>31 (0.8)</td>
<td>371 (34.5)</td>
</tr>
<tr>
<td>8882266</td>
<td>8040-NF-200-30</td>
<td>31 (0.8)</td>
<td>371 (34.5)</td>
</tr>
<tr>
<td>8882267</td>
<td>8040-NF-200-45</td>
<td>45 (1.1)</td>
<td>290 (26.9)</td>
</tr>
</tbody>
</table>

OPERATING AND DESIGN INFORMATION*

Maximum Operating Pressure: 650 psi (44.8 bar)
Maximum Pressure During Cleaning: 150 psi (10.3 bar)
Operating Temperature Range: 40°-122°F (5-50°C)
Maximum Cleaning Temperature: 140°F (60°C)
P pH Range - Continuous Operation: 4.0-10.0
pH Range - Clean-In-Place (CIP): 1.8-11.0
Design Pressure Drop Per Element: 3-6 psi (0.2-0.4 bar)
Design Pressure Drop Per Vessel: 15-35 psi (1.0-2.4 bar)

*NOMINAL DIMENSIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>inches (mm)</td>
<td>inches (mm)</td>
<td>inches (mm)</td>
</tr>
<tr>
<td>All models</td>
<td>40.0 (1,016)</td>
<td>7.9 (201)</td>
<td>1.125 (28.6)</td>
</tr>
</tbody>
</table>

*Including two integral anti-telescoping-devices (ATD’s)
**OPERATING GUIDELINES**

**Membrane Characteristics:**
Dairy-Pro® RO reverse osmosis elements are selected when high rejection to organic and inorganic material is the objective. Dairy-Pro® NF nanofiltration elements are selected when high rejection to organic matter is the objective, while high passage of salts is required for deashing.

**Operating Limits:**
- **Operating Pressure:** The maximum operating pressure for the Dairy-Pro® RO and NF element is listed in the first page of this document. Actual operating pressure is dependent upon system flux rate (appropriate for feed source) as well as feed, recovery and temperature conditions.
- **Permeate Pressure:** Permeate pressure should not exceed baseline (concentrate) pressure at any time (including online, off-line and during transition). Reverse pressure will damage the module.
- **Differential Pressure:** Maximum differential pressure limit is 6 psi (0.4 bar) per element. Maximum differential pressure for any length vessel is 35 psi (2.4 bar).
- **Temperature:** Maximum operating temperature is 122°F (50°C). Maximum cleaning temperature is 140°F (60°C).
- **pH:** Allowable range for continuous operation is 4.0 to 10.0. Allowable range for cleaning is 1.8 to 11.0.

**Water Quality for Cleaning & Diafiltration:**
- **Turbidity and SDI:** Maximum feed turbidity is 1 NTU. Maximum feed Silt Density Index (SDI 15-minute test) is 5.0.
- **Guidelines:** Please refer to the KSS “Water Quality Guidelines for CIP and Diafiltration” for more detailed information.

**Chlorine and Chemical Exposure:**
- KSS recommends removing residual free chlorine prior to membrane exposure to prevent premature membrane failure.
- Sodium metabisulfite (without catalysts such as cobalt) is the preferred chemical to eliminate free chlorine or similar oxidizers in the feed.

**Cationic Polymers and Surfactants:**
Dairy-Pro® RO and NF membranes may be irreversibly fouled if exposed to cationic (positively charged) polymers or surfactants. Exposure to these chemicals during operation or cleaning is not recommended and will void the warranty.

**Lubricants:**
For element installation, use only water or glycerin to lubricate seals. The use of petroleum or vegetable-based oils or solvents may damage the element and will void the warranty.

**Supplemental Technical Bulletins:**
- RO/NF Module Cleaning Procedures
- Water Quality Guidelines for CIP and Diafiltration

**Service and Ongoing Technical Support:**
Koch Separation Solutions (KSS) has an experienced staff of professionals available to assist end-users and OEM’s for optimization of existing systems and support with the development of new applications. Along with the availability of supplemental technical bulletins, KSS also offers a complete line of KOCHKLEEN® cleaning and maintenance chemicals.

**KSS Capability:**
KSS is the leader in crossflow membrane technology, manufacturing reverse osmosis, nanofiltration, microfiltration, and ultrafiltration membranes and membrane systems. The industries we serve include food, dairy and beverage, semiconductors, automotive, water and wastewater, chemical and general manufacturing. KSS adds value by providing top quality membrane products and by sharing our experience in the design and supply of thousands of crossflow membrane systems worldwide.