

# KMS FOOD & DAIRY POLISHING RO ELEMENT

## Reverse Osmosis 8" Sanitary Spiral Element

### PRODUCT DESCRIPTION

Membrane Chemistry: Proprietary TFC® polyamide  
 Membrane Type: HR™ - high rejection reverse osmosis  
 Construction: Sanitary spiral wound with net outerwrap and attached ATD's  
 Regulatory Status: Conform to USDA 3-A standards and FDA regulations (CFR Title 21)  
 Options: Feed Spacer: N (31 mil), or V (46 mil)

### NOMINAL PERFORMANCE

| Part Number | Model*       | Minimum Rejection [%]** | Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> ) | Feed Spacer mil (mm) |
|-------------|--------------|-------------------------|--|----------------------|
| 8882218     | 8040 HR-NYVP | 99.3                    | 371 (34.5)   | 31 (0.8)             |

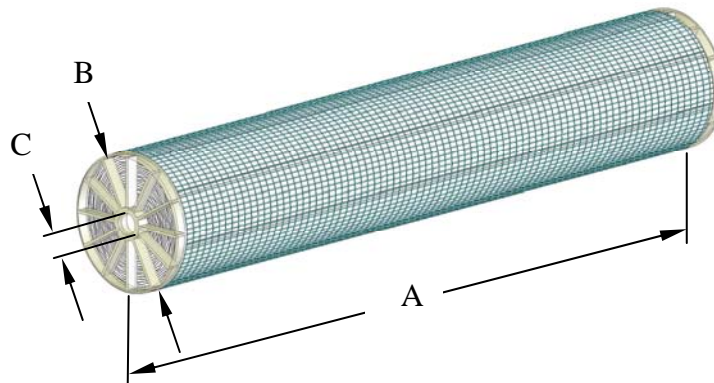
\* Previously designated as 8822 elements  
 \*\* Test Conditions: 2,000 mg/l NaCl in deionized water at 225 psi (15.5 bar) applied pressure, 10% recovery, 77°F (25°C), pH 7.5

### OPERATING AND DESIGN INFORMATION\*

Maximum Operating Pressure: 650 psi (44.8 bar)  
 Maximum Pressure During Cleaning: 150 psi (10.3 bar)  
 Maximum Process Temperature: 122°F (50°C)  
 Maximum Cleaning Temperature: 122°F (50°C)  
 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)

\* Consult KMS Process Technology Group for specific applications.

### NOMINAL DIMENSIONS



| Part Numbers | Model        | A* inches (mm) | B inches (mm) | C inches (mm) |
|--------------|--------------|----------------|---------------|---------------|
| 8882218      | 8040 HR-NYVP | 40.0 (1,016)   | 7.9 (201)     | 1.125 (28.6)  |

\* Including two integral anti-telescoping-devices (ATD's)

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### Membrane Characteristics:

- HR reverse osmosis elements are selected when high rejection to organic and inorganic material is the objective.

### Operating Limits:

- **Operating Pressure:** The maximum operating pressure for the HR elements 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) for the HR elements. Maximum cleaning temperature is 122°F (50°C) for these membrane types.
- **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 KMS "Water Quality Guidelines for CIP and Diafiltration" for more detailed information.

### Chlorine and Chemical Tolerance:

- Maximum continuous chlorine exposure limit is 0.1 ppm. KMS recommends removing residual free chlorine prior to membrane exposure to prevent premature membrane failure.
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- Sodium metabisulfite (without catalysts such as cobalt) is the preferred chemical to eliminate free chlorine or similar oxidizers in the feed.
- Chlorine tolerance for HR membranes may be significantly reduced if catalyzing metals such as iron are present or if the feed pH and/or temperature conditions are different than stated.

### Cationic Polymers and Surfactants:

HR 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 Membrane Systems (KMS) 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, KMS also offers a complete line of KOCHKLEEN® cleaning and maintenance chemicals.

### KMS Capability

KMS 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. KMS 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.

*The information contained in this publication is believed to be accurate and reliable, but is not to be construed as implying any warranty or guarantee of performance. We assume no responsibility, obligation or liability for results obtained or damages incurred through the application of the information contained herein. Refer to Standard Terms and Conditions of Sale and Performance Warranty documentation for additional information.*

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02/12 Rev. 12-1