



KMS HRX SANITARY RO ELEMENTS

Reverse Osmosis 4" and 8" Sanitary Element Series

PRODUCT DESCRIPTION

Membrane Chemistry: Proprietary TFC® polyamide
 Membrane Type: HRX - high rejection reverse osmosis
 Construction: Sanitary spiral wound elements with net outerwrap
 Regulatory Status: Compliant with US FDA CFR Title 21, EC Reg. No. 1935/2004, and EU Reg. No. 10/2011. Halal-certified by the Islamic Food and Nutrition Council of America (IFANCA)
 Applications: Concentration of UF permeate/lactose, juices. Polishing of RO permeate and evaporator condensate. Polishing of water for reuse.
 Options: Diameter: 3.8", 7.8" or 8.0"
 Length: 38" or 39"
 Feed Spacer: N (31 mil) or V (46 mil)
 Outerwrap: Controlled (e.g. NYV) or trimmable (e.g. NYT)

NOMINAL PERFORMANCE

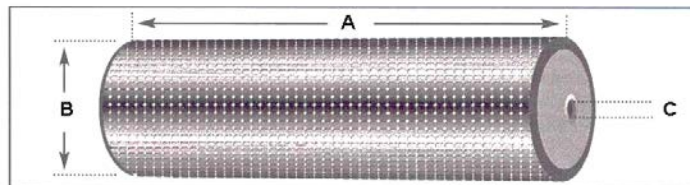
Part Numbers	Model	Active Membrane Area		Feed Spacer	
		ft ²	(m ²)	mil	(mm)
8383830	3838 HRX-NYV	76	(7.1)	31	(0.8)
8383910	3839 HRX-NYV	76	(7.1)	31	(0.8)
8383831	3838 HRX-VYV	61	(5.7)	46	(1.1)
8383911	3839 HRX-VYV	61	(5.7)	46	(1.1)
8783800	7838 HRX-NYV	350	(32.5)	31	(0.8)
8803820	8038 HRX-NYV	371	(34.5)	31	(0.8)
8803822	8038 HRX-NYT	371	(34.5)	31	(0.8)
8803821	8038 HRX-VYV	291	(27.0)	46	(1.1)

OPERATING AND DESIGN INFORMATION*

Typical Operating Pressure: 300 - 600 psi (20.7 – 41.4 bar)
 Maximum Operating Pressure: 650 psi (44.8 bar)
 Operating Temperature Range: 40 - 122°F (5 - 50°C)
 Maximum Cleaning Temperature: 122°F (50°C)
 Allowable pH - Continuous Operation: 4.0 - 10.0
 Allowable pH - Continuous Operation: 2.5 - 10.0 below 77°F (25°C)
 Allowable pH - Clean-In-Place (CIP): 1.8 - 11.0
 Design Pressure Drop Per Element: 6 - 10 psi (0.4 - 0.7 bar)
 Design Pressure Drop Per Vessel: 30 - 50 psi (2.1 - 3.4 bar)

* Consult KMS Process Technology Group for specific applications.

NOMINAL DIMENSIONS



Model	A inches (mm)	B inches (mm)	C inches (mm)
3838 HRX	38.0 (965)	3.8 (96.0)	0.831 (21.1)
3839 HRX	38.8 (984)	3.8 (96.0)	0.831 (21.1)
7838 HRX	38.0 (965)	7.7 (197.0)	1.125 (28.6)
8038 HRX	38.0 (965)	7.9 (201.0)	1.125 (28.6)

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Membrane Characteristics:

HRX 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 HRX 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 element.
- **Differential Pressure:** Maximum differential pressure limit is 10 psi (0.7 bar) per element. Maximum differential pressure per pressure vessel is 50 psi (3.4 bar).
- **Temperature:** Maximum operating and cleaning temperature is 122°F (50°C).
- **pH:** Allowable range for continuous operation is 4.0 to 10.0. Continuous operation at lower pH, between 2.5 and 4.0, is allowed if temperature is lower than 77°F (25°C). 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) is 5.0 (15-minute test).
- **Guidelines:** Please refer to the KMS "Water Quality Guidelines for CIP and Diafiltration" for more detailed information.

Chlorine and Chemical Exposure:

- KMS 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:

HRX 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 Element 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 OEMs 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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