DATASHEET

KOVALUS Separation Solutions™

Sani-Pro® HRX™ Pro Reverse Osmosis Elements

High Flow Sanitary Reverse Osmosis Spiral Elements

PRODUCT DESCRIPTION	
Membrane Chemistry:	Proprietary TFC® polyamide
Membrane Type:	HRX Pro - high rejection reverse osmosis
Construction:	Sanitary spiral wound elements with net outerwrap with two BAND-TITE® reinforcement straps
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 low MW organics and UF permeate. Polishing of RO permeate and evaporator condensate.

NOMINAL SPECIFICATIONS

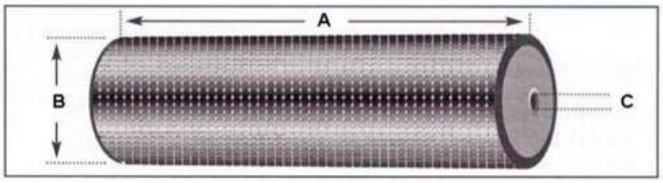
Model	Membrane Area 30-mil Spacer ft² (m²)	45-mil Spacer ft² (m²)	62-mil Spacer ft² (m²)
3838 HRX Pro	76 (7.1)	61 (5.7)	46 (4.3)
3839 HRX Pro	76 (7.1)	61 (5.7)	- -
7838 HRX Pro	350 (32.5)	278 (25.8)	- -
8038 HRX Pro	371 (34.5)	291 (27.0)	232 (21.5)

Not all options are available. Please check with KSS about spacer and outer wrap availability.

OPERATING AND DESIGN INFORMATION*	
Typical Operating Pressure:	300 - 600 psi (20.7 - 41.4 bar)
Maximum Operating Pressure:	800 psi (55 bar)
Operating Temperature Range:	40 - 122°F (5 - 50°C)
Maximum Cleaning Temperature:	140°F (60°C)
Allowable pH - Continuous Operation:	4.0 - 10.0
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 KSS Process Technology Group for specific applications.

NOMINAL DIMENSIONS



Model	A inches	A mm	B inches	B mm	C inches	C mm
3838	38.0	965	3.8	96	0.831	21.1
3839	38.8	984	3.8	96	0.831	21.1
7838	38.0	965	7.7	197	1.125	28.6
8038	38.0	965	7.9	201	1.125	28.6

OPERATING GUIDELINES

Membrane Characteristics:
Sani-Pro® HRX Pro reverse osmosis elements are selected when high rejection of organic and inorganic material is the objective.

Options:
- Diameter: 3.8”, 7.8” or 8.0”
- Length: 38” or 39”
- Outer wrap: Controlled or trimmable
- Feed Spacer: 30, 45 or 62 mil

Operating Limits:
- **Operating Pressure:** The maximum operating pressure for the HRX Pro elements is listed in the first page of this document. When operating above 650 psi (45 bar) temperature should not exceed 95°F (36°C). Actual operating pressure is dependent upon system flux rate (appropriate for feed source) as well as feed, concentration 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 temperature is 122°F (50°C). Maximum cleaning temperature is 140°F (60°C). Temperature should be kept below 95°F (36°C) when operating above 650 psi (45 bar).
- **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) is 5.0 (15-minute test).
- **Guidelines:** Please refer to the KSS “Water Quality Guidelines for CIP and Diafiltration” for more detailed information.

Chlorine and Chemical Exposure:
- Adherence to cleaning and sanitizing procedures including chemical concentrations, pH, temperature, and exposure time is necessary to achieve maximum useful element life. Accurate records must be maintained.
- 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.
- Iron or other catalyzing metals in the presence of oxidizers such as hydrogen peroxide or peracetic acid are known to accelerate membrane degradation.

Cationic Polymers and Surfactants:
Sani-Pro® HRX Pro 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

KSS ASSIST™ Service and Ongoing Technical Support:
KSS 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, KSS also offers a complete line of 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.

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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