DATASHEET

KOVALUS Separation Solutions™

SelRO® MPS-34 pH Stable Elements

Nanofiltration Spiral Element Series - 8040

PRODUCT DESCRIPTION

Membrane Chemistry:	Proprietary composite nanofiltration membrane
Membrane Type:	pH stable nanofiltration membrane
Molecular Weight Cut-Off (MWCO)	200 Daltons
Construction:	Spiral wound element with hard overwrap and polysulfone permeate tube
Major Applications:	Acid and caustic recovery, product concentration

SPECIFICATIONS

Part Number	Model	Rejection [%] Glucose / Sucrose	Rejection [%] NaCl	Permeate Flow gpd (m^3/day)	Feed Spacer mil (mm)	Membrane Area ft^2 (m^2)
0770255	8040 MPS-34-NYHN	95 / 98	35	10,900 (41.2)	31 (0.8)	308 (28.6)
0770256	8040 MPS-34-ZYHN	95 / 98	35	7,450 (28.1)	57 (1.4)	210 (19.5)

*Test Conditions: RO water at 440 psi (30 bar), 86°F (30°C). Feed solution for rejection tests is 3% glucose / 3% sucrose or 5% NaCl.

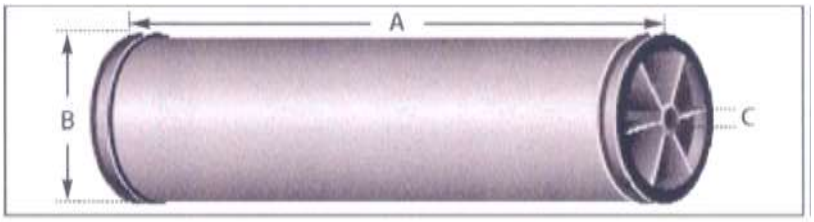
OPERATING AND DESIGN INFORMATION*

Typical Operating Pressure:	220-510 psi (15-35 bar)
Maximum Temperature:	158°F (70°C)**
Allowable pH - Continuous Operation:	0-14
Allowable pH - Clean-In-Place (CIP):	0-14
Maximum Pressure Drop Per Element:	10 psi (0.7 bar)
Maximum Pressure Drop Per Vessel:	50 psi (3.5 bar)

*Consult KSS Process Technology Group for specific applications.

**Refer to the Operating Envelope of the SelRO® Elements when temperature is higher than 122°F (50°C).

NOMINAL DIMENSIONS



Model	A inches	A mm	B inches	B mm	C inches	C mm	Interconnector	O-Rings
8040 MPS-34-NYHN	40.0	1016	7.93	202	1.125	28.6	0030585	0035464
8040 MPS-34-ZYHN	40.0	1016	7.93	202	1.125	28.6	0030585	0035464

TYPICAL PROCESS STREAMS

5% Hydrochloric acid	15% Acetic acid	3% Sodium Hydroxide
37% Hydrochloric acid	5% Nitric acid	20% Sodium Hydroxide
15% Sulfuric acid	15% Phosphoric acid	10% Potassium hydroxide

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OPERATING GUIDELINES

Membrane Characteristics and Performance:

SelRO® composite nanofiltration membrane in a spiral wound configuration, with superior pH and temperature stability.

Performance specifications shown on the front side of this document are nominal values.

Options:

- Feed channel spacers: 31 mil (N) and 57 mil (Z)

Operating Limits:

- **Operating Pressure:** Maximum operating pressure for SelRO® MPS-34 is 510 psi (35 bar). Actual operating pressure is dependent upon system flux rate, as well as feed, recovery and temperature conditions.
- **Permeate Pressure:** Maximum allowed permeate pressure is 3 psi (0.2 bar).
- **Differential Pressure:** Maximum differential pressure limit is 10 psi (0.7 bar) per element. Maximum differential pressure for any length vessel is 50 psi (3.5 bar).
- **Temperature:** Maximum operating temperature is 158°F (70°C). For guidelines of recommended temperature and pressure please refer to the "Operating Envelope for SelRO® Elements" in this document.
- **pH:** Allowable range for continuous operation is 0-14.

Water Quality for Cleaning and Diafiltration:

- **Turbidity:** For best performance maximum feed turbidity is 1 NTU.

Chlorine and Chemical Exposure:

- It is not recommended to expose the MPS-34 membrane to chlorine or other oxidants, as it may affect the membrane performance.
- Sodium metabisulfite (without catalysts such as cobalt) is the preferred chemical to eliminate free chlorine or other oxidizers in the feed.
- It is not recommended to expose the MPS-34 membrane to organic solvents, such as alcohol, acetone, etc.

Feed Flow Rate:

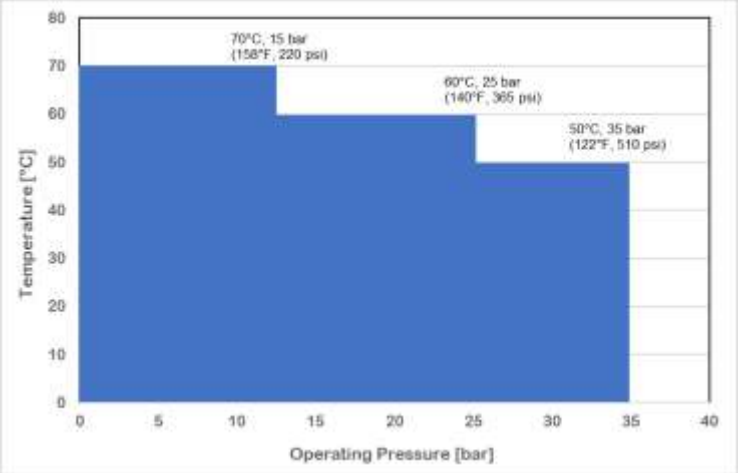
Maximum and minimum flow rate for the MPS-34 spiral element are as follows:

- Min. 25 gpm (95 liter/min)
- Max. 75 gpm (285 liter/min)

Actual feed flow rate is dependent upon system flux rate, feed characteristics, fouling tendency and system design.

Operating Envelope for SelRO® MPS-34 Elements:

It is important to follow the pressure - temperature relationship guidelines in order to prevent irreversible performance deterioration. Use this diagram as a guideline to the operating parameters for the MPS-34 product:



Element Handling:

- **Cleaning Materials:** Depending on the nature of the feed, cleaning will include low pH cycle, high pH cycle, and surfactant blends. Consult KSS regarding the cleaning of your membranes.
- **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 any warranty.

Storage Conditions: Refer to KSS “Element Handling and Storage” bulletin.

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. KSS also offers a complete line of membrane pretreatment, cleaning, and maintenance chemicals.

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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