



SeIRO™ MPS-34 pH STABLE SANITARY ELEMENT

8" Acid and Caustic Stable Nanofiltration Spiral Element

PRODUCT DESCRIPTION

Membrane Chemistry:	Proprietary Composite Nanofiltration Membrane
Membrane Type:	MPS-34 pH stable Nanofiltration Membrane
Molecular weight cut-off:	200 Daltons
Construction:	Sanitary spiral wound with net trimmable outerwrap
Regulatory status:	Compliant with US FDA CFR Title 21.
Applications:	Acid and caustic recovery, Product concentration
Feed Spacer:	Feed Spacer: 57 mil (1.4 mm)

NOMINAL PERFORMANCE*

Model	Part Number	Rejection [%] Glucose / Sucrose	NaCl	Permeate Flow gpd (m³/day)	Membrane Area ft² (m²)	Feed Spacer mil (mm)
8038 MPS-34-ZYT	0770251	95 / 97	35	7,800 (29.5)	222 (20.6)	57 (1.4)

*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.

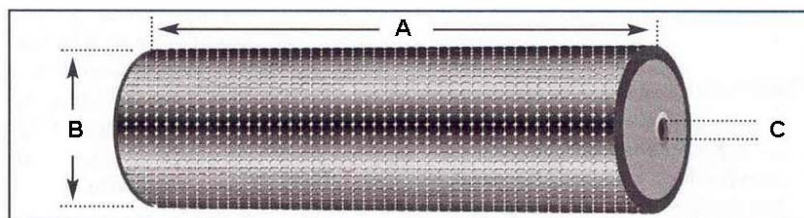
OPERATING AND DESIGN INFORMATION*

Typical Operating Pressure:	145 - 510 psi (10 - 35 bar)
Operating Temperature Range**:	40 - 158°F (5 - 70°C)
Cleaning Temperature Range**:	95 - 158°F (35 - 70°C)
Allowable pH - Continuous Operation:	0 - 14
Allowable pH - Clean-In-Place (CIP):	0 - 14
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.

* Refer to the Operating Envelope for Code 30 Membranes Section in this document when temperature is higher than 122°F (50°C)

NOMINAL DIMENSIONS



Part Number	Model	A inches (mm)	B inches (mm)	C inches (mm)
0770251	8038 MPS-34-ZYT	38.0 (965)	7.9 (201.0)	1.125 (28.6)

TYPICAL PROCESS STREAMS

5% HCl	15% Acetic acid	3% NaOH
37% HCl	5% HNO ₃	20% NaOH
15% H ₂ SO ₄	20% H ₃ PO ₄	10% KOH

SeIRO™ MPS-34 SANITARY ELEMENTS

Membrane Characteristics and Performance:

SeIRO™ 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.

Operating Limits:

- **Operating Pressure:** Maximum operating pressure for SeIRO 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 SeIRO 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:

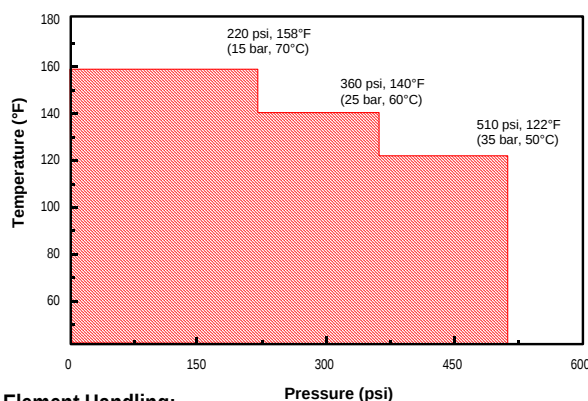
Min. 25 gpm (95 liter/min)

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 SeIRO Elements:

It is important to follow the pressure - temperature relationship guidelines, in order to prevent irreversible compaction and performance deterioration. The following diagram should be used as a guideline to operating the MPS-34 spiral element:



Element Handling:

- **Recommended Cleaning Materials:** Depending on the nature of the feed, the following cleaning agents can be chosen:

- 0.1-5% w/w sodium hydroxide at 122°F (50°C)
- 0.2-1% w/w nitric or phosphoric acid at 122°F (50°C)
- 0.1-0.5% w/w detergent mix KOCHKLEEN™ KLD-III at 122°F (50°C)
- 0.5% anionic surfactant (such as SDS) at 122°F (50°C)

Consult KMS regarding the use of other cleaning materials.

- **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 Solution:** Should be made with:

- Short Term (up to two weeks): 0.25 w/w sodium metabisulfite.
- Long Term: 0.7% w/w benzalkonium chloride.
- Glycerin should not be used for storage of SeIRO membranes.
- The membrane element should not get dry. It should be stored in a sealed bag, at a temperature ranging from 36°F - 86°F (2°C - 30°C).

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. KMS also offers a complete line of KOCHKLEEN™ 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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