



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 [%]		Permeate Flow	Membrane Area	Feed Spacer
		Glucose / Sucrose	NaCl	gpd (m ³ /day)	ft ² (m ²)	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.

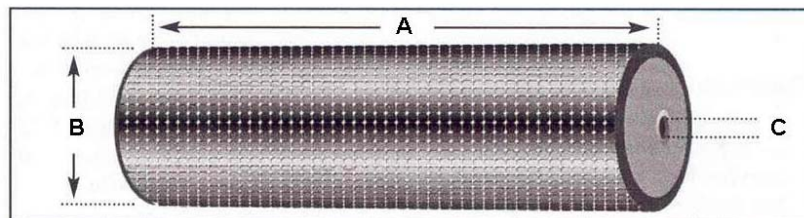
OPERATING AND DESIGN INFORMATION*

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	B	C
		inches (mm)	inches (mm)	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:

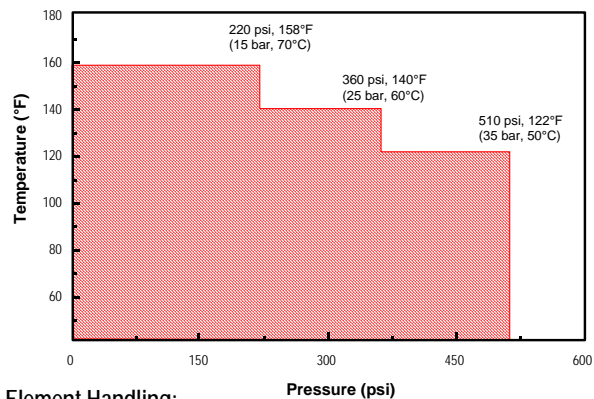
SeIRO™ composite nanofiltration membrane in a spiral wound configuration, with superior pH and temperature stability. Performance specifications shown on the front side of this document are nominal values.

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.

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