



SeIRO[®] MPS-34 - pH Stable Membrane

Nanofiltration Spiral Module Series - 8040

PRODUCT DESCRIPTION

Membrane Chemistry:	Proprietary composite nanofiltration membrane
Membrane Type:	pH stable nanofiltration membrane
Molecular Weight Cut-Off (MWCO)	200 Dalton
Construction:	Spiral wound element
Major Applications:	Acid and caustic recovery, product concentration
Options:	Feed channel spacers: 30 mil (X) and 57 mil (Z) Permeate tube: B2 (stainless steel) or C2 (Polysulfone)

SPECIFICATIONS*

Model	Part Number	Rejection [%]		Permeate Flow	Membrane Area	Feed Spacer
		Glucose / Sucrose	NaCl	gpd (m ³ /day)	ft ² (m ²)	mil (mm)
MPS-34 8040 B2X	0770053	95 / 97	35	10,250 (39.0)	290 (27)	30 (0.8)
MPS-34 8040 B2Z	0770179	95 / 97	35	7,250 (27.4)	205 (19)	57 (1.4)
MPS-34 8040 C2X	0770252	95 / 97	35	10,250 (39.0)	290 (27)	30 (0.8)

*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*

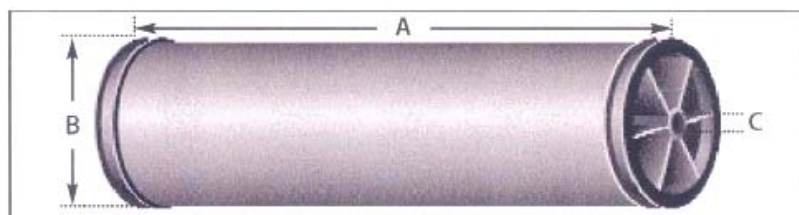
Typical Operating Pressure:	220-510 psi (15-35 bar)
Maximum Temperature:	158°F (70°C)**
Allowable pH - Continuous Operation:	0-14***
Allowable pH - Clean-In-Place (CIP):	0-14***
Maximum Pressure Drop Per Element:	10 psi (0.7 bar)
Maximum Pressure Drop Per Vessel (5 in Series):	50 psi (3.5 bar)

* Consult Process Technology group for specific applications.

** Please refer to the Operating Envelope of Code 30 Membranes when temperature is higher than 122°F (50°C).

*** Corrosive acids should be avoided when a stainless steel permeate tube is being used.

NOMINAL DIMENSIONS



Model	Part Number	A		B		C	
		inches	(mm)	inches	(mm)	inches	(mm)
MPS-34 8040 B2X	0770053	40.0	(1016)	7.9	(200)	1.187	(30.15)
MPS-34 8040 B2Z	0770179	40.0	(1016)	7.9	(200)	1.187	(30.15)
MPS-34 8040 C2X	0770179	40.0	(1016)	7.9	(200)	1.187	(30.15)

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

SelRO® MPS-34 - pH Stable Membrane

Membrane Characteristics:

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

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 "Recommended Envelope for Code 30 Membranes" in this document.
- **pH:** Allowable range for continuous operation is 0-14. When a stainless steel permeate tube is used, corrosive acids should be avoided.

Water Quality for cleaning and Diafiltration:

Turbidity: Maximum feed turbidity is 1 NTU.

Guidelines: For more details please consult with KMS Process Technology Group.

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:

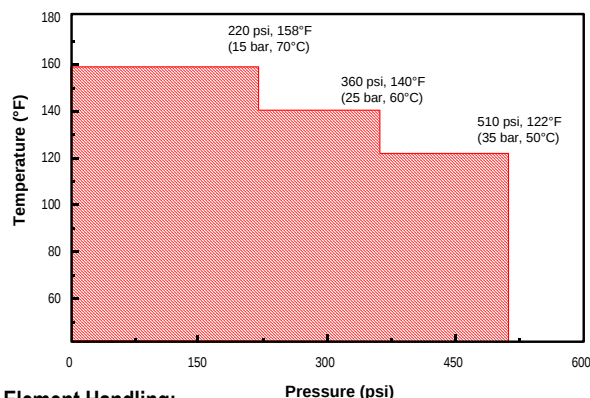
Maximum and minimum flow rate for the MPS-34 spiral module are as follows:

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 Code 30 Membranes:

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 module:



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
 - 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 the MPS-34 membrane. The membrane module should not get dry. It should be stored in a sealed bag, in 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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