



# SeIRO<sup>®</sup> MPS-34 - pH Stable Membrane

## Nanofiltration Spiral Module Series – 2540, 4040

### 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
Permeate Tube Material:	CPVC
Options:	Feed channel spacers: 30 mil (X) and 57 mil (Z)

### SPECIFICATIONS\*

Model	Part Number	Rejection [%]		Permeate Flow gpd (m <sup>3</sup> /day)	Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Feed Spacer mil (mm)
		Glucose / Sucrose	NaCl			
MPS-34 2540 A2X	0770061	95 / 97	35	610 (2.3)	17.2 (1.6)	30 (0.8)
MPS-34 2540 A2Z	0770090	95 / 97	35	455 (1.7)	12.9 (1.2)	57 (1.4)
MPS-34 4040 A2X	0770166	95 / 97	35	2,240 (8.5)	60.3 (5.6)	30 (0.8)
MPS-34 4040 A2Z	0770092	95 / 97	35	1,520 (5.8)	43.0 (4.0)	57 (1.4)

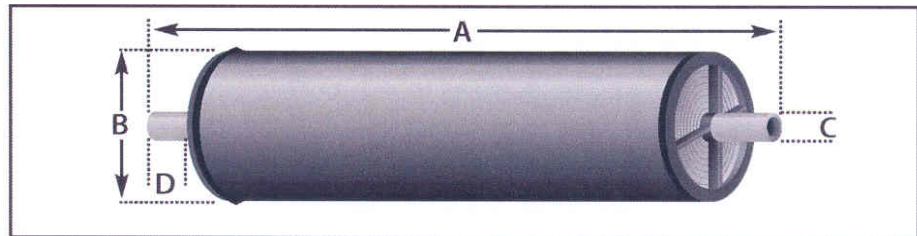
\*Test Conditions: RO water at 440 psi (30 bar), 86°F (30°C). Feed solution for rejection tests is 3% glucose / 3% sucrose or 5% NaCl.

### OPERATING AND DESIGN INFORMATION\*

Typical Operating Pressure:	220-510 psi (15-35 bar)
Maximum Temperature:	122°F (50°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.

### NOMINAL DIMENSIONS



Model	A		B		C		D	
	inches	(mm)	inches	(mm)	inches	(mm)	inches	(mm)
MPS-34 2540	40.0	(1016)	2.4	(61)	0.75	(19.0)	1.0	(25.4)
MPS-34 4040	40.0	(1016)	3.9	(99)	0.75	(19.0)	1.0	(25.4)

### TYPICAL PROCESS STREAMS

5% HCl	15% Acetic acid	3% NaOH
37% HCl	5% HNO <sub>3</sub>	20% NaOH
15% H <sub>2</sub> SO <sub>4</sub>	20% H <sub>3</sub> PO <sub>4</sub>	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:

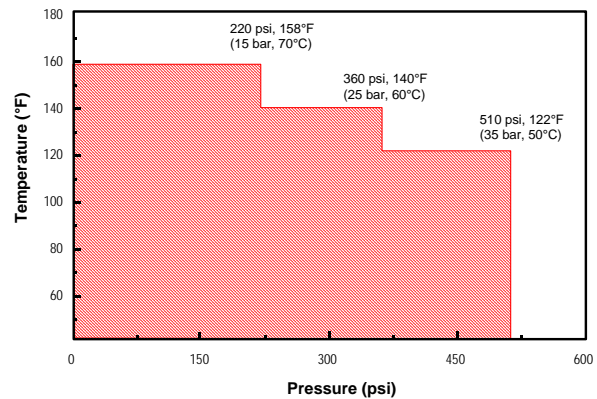
- **Operating Pressure:** Maximum operating pressure for SelRO® MPS-34 is 510 psi (35 bar). Actual operating pressure is dependent upon system flux rate, as well as feed, recovery and temperature conditions.
- **Permeate Pressure:** Maximum allowed permeate pressure is 3 psi (0.2 bar).
- **Differential 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).
- **Operating and Cleaning Temperature:** Maximum temperature is 158°F (70°C) for B2 elements (stainless steel permeate tube). The operating and cleaning temperature is limited to 122°F (50°C) for A2 elements (CPVC permeate tube). 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:

2540	Minimum	2 gpm (7.5 liter/min)
2540	Maximum	5 gpm (19 liter/min)
4040	Minimum	6 gpm (22 liter/min)
4040	Maximum	17 gpm (65 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.

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