



SeIRO™ 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
	Options:	Feed channel spacers: 31 mil (N) and 57 mil (Z)

SPECIFICATIONS*	Model	Part Number	Rejection [%]		Permeate Flow gpd (m ³ /day)	Membrane Area ft ² (m ²)	Feed Spacer mil (mm)
			Glucose / Sucrose	NaCl			
	8040 MPS-34-NYHN	0770255	95 / 97	35	10,900 (41.2)	308 (28.6)	31 (0.8)
	8040 MPS-34-ZYHN	0770256	95 / 97	35	7,450 (28.1)	210 (19.5)	57 (1.4)

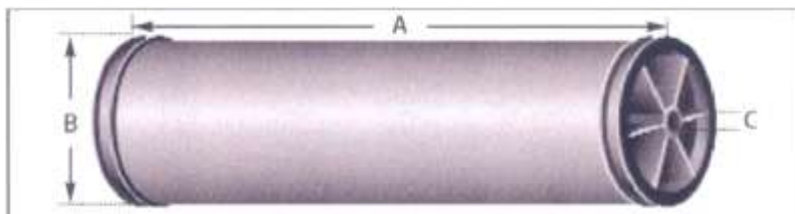
*Test Conditions: RO water at 440 psi (30 bar), 86°F (30°C). Feed solution for rejection tests is 3% glucose / 3% sucrose or 5% NaCl.

OPERATING AND DESIGN INFORMATION*	Typical Operating Pressure:	220-510 psi (15-35 bar)
	Maximum Temperature:	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 Process Technology group for specific applications.

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

NOMINAL DIMENSIONS



Model	A		B		C		Interconnector	O-Rings
	inches	(mm)	inches	(mm)	inches	(mm)		
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% 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

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Membrane Characteristics and Performance:

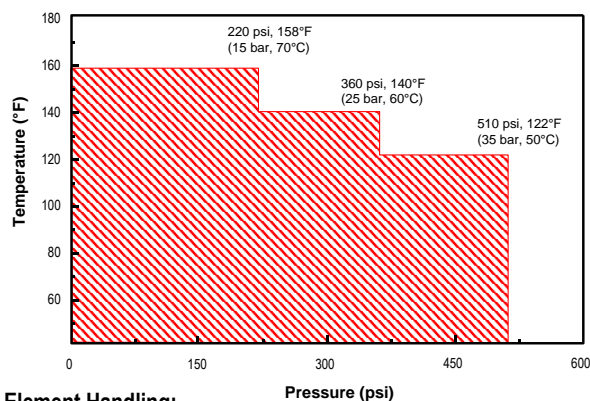
SelRO™ composite nanofiltration membrane in a spiral wound configuration, with superior pH and temperature stability. Performance specifications shown on the front side of this document are nominal values.

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 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 SelRO 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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Koch Membrane Systems, Inc., www.kochmembrane.com

Corporate Headquarters: 850 Main Street, Wilmington, Massachusetts 01887-3388, US, Tel. Toll Free: 1-888-677-5624, Telephone: 1-978-694-7000, Fax: 1-978-657-5208
European Headquarters: Koch Chemical Technology Group Ltd., Units 3-6, Frank Foley Way, Stafford ST16 2ST, GB, Telephone: +44-178-527-2500, Fax: +44-178-522-3149

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