KOCH MEMBRANE SYSTEMS

LENNTECH
info@lenntech.com Tel. +31-152-610-900
www.lenntech.com Fax. +31-152-616-289

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

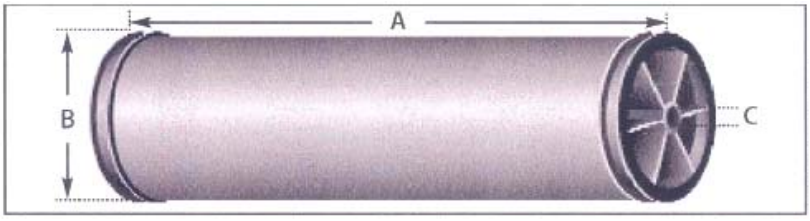
*Test Conditions: RO water at 440 psi (30 bar), 86°F (30°C). Feed solution for rejection tests is 3% glucose / 3% sucrose or 5% NaCl.

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 inches	A (mm)	B inches	B (mm)	C inches	C (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_2SO_4	20% H_3PO_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.

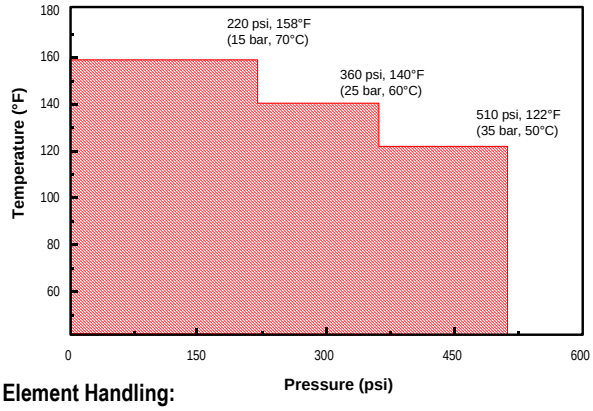
  Guidelines: For more details please consult with KMS Process Technology Group.
- **Chlorine and Chemical Exposure:**
  - It is not recommended to expose the MPS-34 membrane to chlorine or other oxidants, as it may affect the membrane performance.
  - Sodium metabisulfite (without catalysts such as cobalt) 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.