



SeIRO[®] MPS-36 - 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):	1000 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 materials: CPVC (A2) and Stainless Steel (B2)

SPECIFICATIONS*

Model	Part Number	Rejection [%]		Permeate Flow gpd (m ³ /day)	Membrane Area ft ² (m ²)	Feed Spacer mil (mm)
		Glucose / Sucrose	NaCl			
MPS-36 2540 A2X	0770036	30 / 50	10	2,535 (9.6)	17.2 (1.6)	30 (0.8)
MPS-36 2540 B2X	0770052	30 / 50	10	2,535 (9.6)	17.2 (1.6)	30 (0.8)
MPS-36 2540 B2Z	0770151	30 / 50	10	1,900 (7.2)	12.9 (1.2)	57 (1.4)
MPS-36 4040 A2X	0770194	30 / 50	10	9,350 (35.4)	60.3 (5.6)	30 (0.8)
MPS-36 4040 B2X	0770198	30 / 50	10	8,875 (33.6)	60.3 (5.6)	30 (0.8)
MPS-36 4040 B2Z	0770084	30 / 50	10	6,340 (24.0)	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*

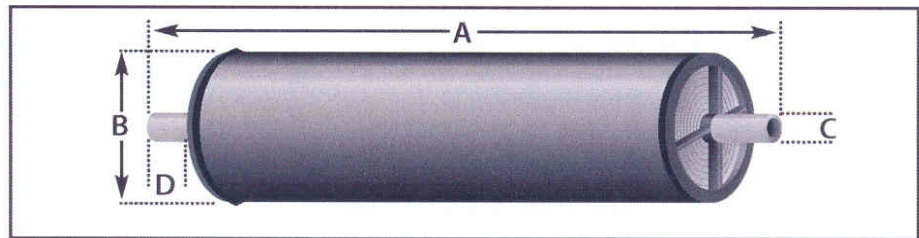
Typical Operating Pressure:	220-510 psi (15-35 bar)
Maximum Temperature (B2 Elements):	158°F (70°C)**
Maximum Temperature (A2 Elements):	122°F (50°C)
Allowable pH - Continuous Operation:	1-13***
Allowable pH - Clean-In-Place (CIP):	1-13***
Maximum Pressure Drop Per Element:	10 psi (0.7 bar)
Maximum Pressure 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	A		B		C		D	
	inches	(mm)	inches	(mm)	inches	(mm)	inches	(mm)
MPS-36 2540	40.0	(1016)	2.4	(61)	0.75	(19.0)	1.0	(25.4)
MPS-36 4040	40.0	(1016)	3.9	(99)	0.75	(19.0)	1.0	(25.4)

SelRO® MPS-36 - pH Stable Membrane

Membrane Characteristics:

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

Operating Limits:

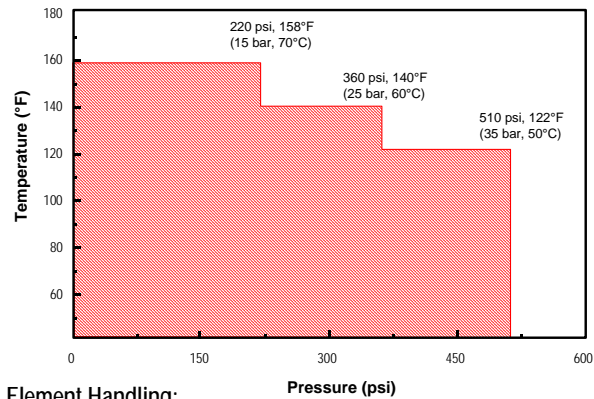
- **Operating Pressure:** Maximum operating pressure for SelRO® MPS-36 is 510 psi (35 bar). Actual operating pressure is dependent upon system flux rate, as well as feed, recovery and temperature conditions.
- **Permeate Pressure:** Maximum allowed permeate pressure is 3 psi (0.2 bar).
- **Differential 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 1-13. 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-36 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-36 membrane to organic solvents, such as alcohol, acetone, etc.
- **Feed Flow Rate:** Maximum and minimum flow rate for the MPS-36 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-36 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:** 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-36 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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