



SelRO[®] MPS-36 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): | 1000 Daltons |
| Construction: | Spiral wound element with hard overwrap and polysulfone permeate tube |
| Major Applications: | Acid and caustic recovery, product concentration |

SPECIFICATIONS

| Part Number | Model | Rejection [%] | | Permeate Flow gpd (m ³ /day) | Feed Spacer mil (mm) | Membrane Area ft ² (m ²) |
|-------------|------------------|----------------------|------|--|-------------------------|--|
| | | Glucose / Sucrose | NaCl | | | |
| 0770257 | 8040 MPS-36-NYHN | 30 / 50 | 10 | 36,250 (137) | 31 (0.8) | 308 (28.6) |
| 0770258 | 8040 MPS-36-ZYHN | 30 / 50 | 10 | 210 (19.5) | 57 (1.4) | 210 (19.5) |

*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.

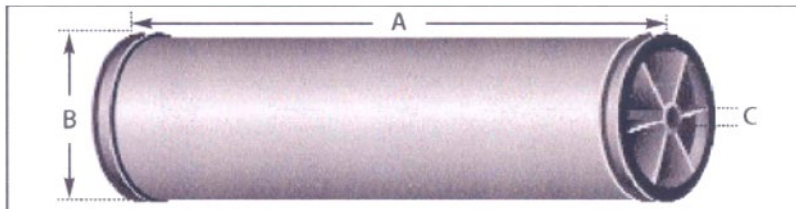
OPERATING AND DESIGN INFORMATION*

| | |
|---|-------------------------|
| Typical Operating Pressure: | 220-510 psi (15-35 bar) |
| Maximum Temperature: | 158°F (70°C)** |
| Allowable pH - Continuous Operation: | 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: | 50 psi (3.5 bar) |

*Consult KSS Process Technology Group for specific applications.

**Refer to the Operating Envelope of the SelRO[®] 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-36-NYHN | 40.0 | (1016) | 7.93 | (202) | 1.125 | (28.6) | 0030585 | 0035464 |
| 8040 MPS-36-ZYHN | 40.0 | (1016) | 7.93 | (202) | 1.125 | (28.6) | 0030585 | 0035464 |



OPERATING GUIDELINES

Membrane Characteristics and Performance:

SeIRO® 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.

Options:

- Feed channel spacers: 31 mil (N) and 57 mil (Z)

Operating Limits:

- Operating Pressure:** Maximum operating pressure for SeIRO® 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).
- Temperature:** Maximum operating temperature is 158°F (70°C). For guidelines of recommended temperature and pressure please refer to the "Operating Envelope SeIRO® MPS-36 Elements" in this document.
- pH:** Allowable range for continuous operation is 1-13.

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-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.

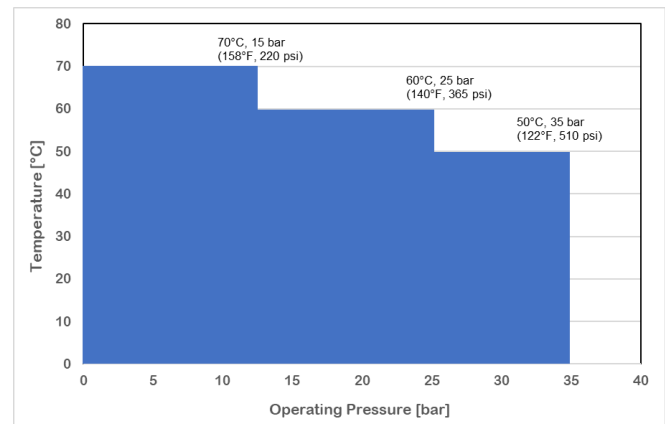
Feed Flow Rate:

Maximum and minimum flow rate for the MPS-36 spiral 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 MPS-36 SeIRO® Elements:

It is important to follow the pressure - temperature relationship guidelines, in order to prevent irreversible performance deterioration. The following diagram should be used as a guideline to operating the MPS-36 spiral product:



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 KSS 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:

Refer to KSS "Element Handling and Storage" bulletin.

Service and Ongoing Technical Support:

Koch Separation Solutions (KSS) 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. KSS also offers a complete line of KOCHKLEEN® membrane pretreatment, cleaning, and maintenance chemicals.

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