

# Heat Sanitizable Membrane

For applications requiring hot water sanitization and sanitization by chemicals.

The company Heat Sanitizable RO membrane elements provide superior permeate quality for hygienic purified water applications. RO elements use a cross-linked fully aromatic polyamide composite membrane.



## Product Specifications

Model	NaCl rejection %	Permeate flow rate GPD (m3/d)	Feed spacer thickness in. (mm)	Active area ft <sup>2</sup> (m <sup>2</sup> )
TMRO 8040HS	99.5%	9,000* (34.1)	0.028 (0.71)	400 (37.2)
TMRO 4040HS	99.5%	1,975* (7.5)	0.028 (0.71)	85 (7.9)

## Test Conditions

Feed water pressure psi (bar)	150 (10.3)
Feed water temperature °F (°C)	77 (25)
Feed water concentration mg/l as NaCl	2,000
Recovery rate %	15
Feed water pH	7

\*Target flow rate after heat conditioning

If you do not see a configuration or performance requirement that meets your needs, a team of product specialists is ready to develop custom engineered solutions. Please inquire within.

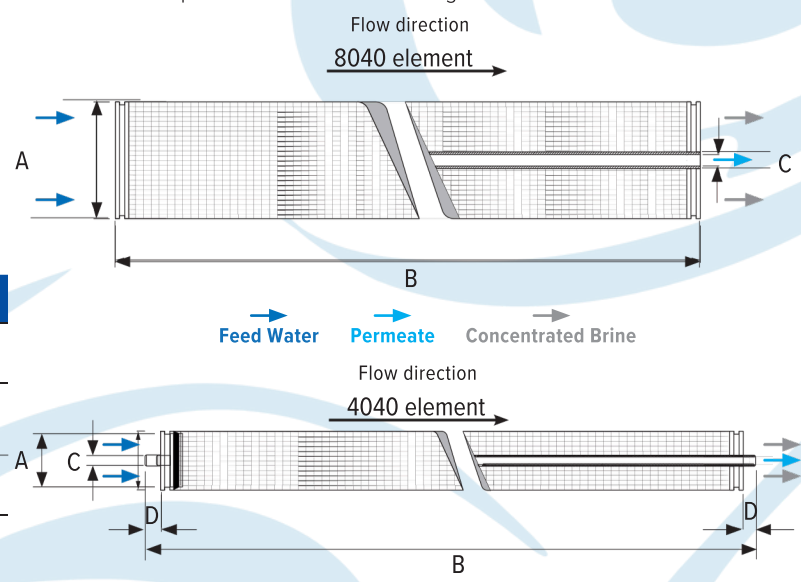
## Dimensions in. (mm)

	4040	8040	Size
A	4.0 (101)	7.9 (201)	Diameter
B	40 (1,016)	40 (1,016)	Length
C	0.75 (19) OD	1.125 (29) ID	Permeate Tube
D	1.0 (26)	—	

## Material Specifications

Feed spacer & element outer wrap	Polyethylene
Permeate tubes, Anti-telescoping device (ATD), inter-connectors	Polysulfone
Permeate carrier	Proprietary
Adhesives	Proprietary

Heat-sanitizable elements (w/ ATD)  
Components conform to FDA Regulation CFR Title 21



**OPERATING LIMITS**

Maximum operating pressure psi (bar)	600 (41.4)
Maximum sanitizing temperature °F (°C)	185 (85)
Maximum operating temperature °F (°C)	113 (45)
Maximum cleaning temperature °F (°C)	122 (50)
Acceptable operating pH range	2.0–11.0
Acceptable short-term cleaning pH range	1.7–11.5
Maximum pressure drop per element psi (bar)	15 (1.0)
Maximum pressure drop per vessel psi (bar)	60 (4.1)

*Consult The company for pressure limits when operating above ambient temperature*

**OXIDANT TOLERANCE**

Chlorine tolerance (short-term cleaning at pH 11)	Non-detect
H <sub>2</sub> O <sub>2</sub> continuous ppm	20*
H <sub>2</sub> O <sub>2</sub> short-term cleaning <77°F (25°C) ppm	1,000*

*\*Free chlorine should not be present in feed*

**Conditioning procedure:**

1. Flush water to drain with non-scaling water at low pressure, maintaining low permeate rates.
2. Recycle warm water 40–45°C at less than 25 psig (1.7 bar) trans-membrane pressure (TMP). The maximum differential pressure is 2 psi per element or 10 psi per vessel.
3. Introduce hot water to the circulating system to increase the temperature to 175–185°F (80–85°C).
4. Maintain this temperature and a TMP less than 25 psig (1.7 Bar) for 80 minutes.
5. Allow the circulating system to cool to 113°F (45°C).
6. The maximum temperature increase or decrease is 2° C/minute.
7. Flush to drain with clean water maintaining a TMP of <25 psi and a maximum feed pressure of 45 psi (3 bar).
8. Factory pre-conditioned HSRO elements are available. Contact The company for details.

**NOTICE**

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|---|---|
| <ol style="list-style-type: none"> <li>1. Elements are preserved in sodium meta-bisulfite. Appropriate personal protective equipment should be worn when handling.</li> <li>2. The company accepts no responsibility for results obtained by the application of this information or the safety or suitability of The company products, either alone or in combination with other products. Users are advised to make their own tests</li> </ol> | <ol style="list-style-type: none"> <li>3. All data may change without prior notice, due to technical modifications or production changes.</li> <li>4. Consult The company for element sizes not shown.</li> </ol> |
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**Applications**

- Food & beverage
- Pharmaceutical (water for injection)
- Diafiltration
- Sugar concentration
- Flavor concentration
- Aroma concentration
- Wine de-alcoholization
- Beer de-alcoholization

**Regulatory Information**

The company membrane elements are certified under:

- ISO 9001:2015 QMS to ensure consistency in product and service quality; and
- ISO 14001:2015 EMS to enhance the environmental performance of our products and services.

**Heat Sanitization**

The company HSRO-series elements are sanitized with hot water as the preferred method in food and pharmaceutical applications eliminating the need for chemicals and other disposals.

New The company HSRO-series elements must be preconditioned prior to initial use by exposure to hot water. Conditioning water must be high-quality chlorine and oxidant free non-scaling, non-fouling water. RO permeate is preferred (Water from an RO that has been in operation for at least 24 hours)