

Pre-Conditioned Heat-Sanitizable Membranes

For hygienic purified water applications

Toray's Pre-Conditioned Heat Sanitizable RO membrane elements provide superior permeate quality for sustainable hygienic purified water applications. RO elements use a cross-linked fully aromatic polyamide composite membrane.



Product Specifications

Model	NaCl rejection %	Permeate flow rate GPD (m ³ /d)	Feed spacer thickness in. (mm)	Active area ft ² (m ²)
TMRO 8040HSX	99.5%	9,000 (34.1)	0.028 (0.71)	400 (37.2)
TMRO 4040HSX	99.5%	1,975 (7.5)	0.028 (0.71)	85 (7.9)

Test Conditions

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

Dimensions in. (mm)

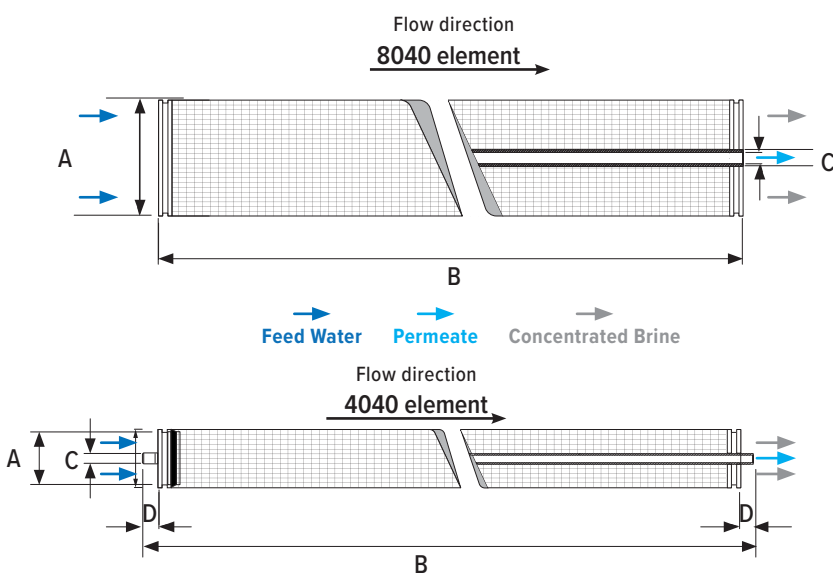
	4040	8040	Size
A	4.0 (101)	7.9 (201)	Diameter
B	40 (1,016)	40 (1,016)	Length
C	0.75 (19) OD	1.125 (29) ID	Permeate Tube
D	1.0 (26)	—	

Material Specifications

Feed spacer	Polyethylene
Element outer wrap	Polypropylene
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	600 psi (41.0 bar)
Maximum sanitizing temperature	185°F (85°C)
Maximum operating temperature	113°F (45°C)
Maximum cleaning temperature	122°F (50°C)
Acceptable operating pH range	2.0–11.0
Acceptable short-term cleaning pH range	1.7–11.5
Maximum pressure drop per element	15 psi (1.0 bar)
Maximum pressure drop per vessel	60 psi (4.1 bar)
Maximum chlorine tolerance (free chlorine)	N/D

Consult Toray for pressure limits when operating above ambient temperature

Important

- The maximum temperature for continuous operation above pH 10 is 95°F (35°C).
- High temperature elements have been pre-conditioned at 80°C.
- Take precautions to ensure that the trans-membrane pressure is kept below 25 psi (1.7 bar).
- Maximum sanitizing dP per element is 2 psi (0.14 bar), with a maximum vessel dP of 10 psi (0.7 bar).
- Elements should be allowed to cool below 113 °F (<45 °C) before changing pressures or concentrations for operation following sanitization.
- The maximum temperature increase or decrease is 2° C/minute.

Applications

- Food & beverage
- Pharmaceutical (water for injection)

Regulatory Information

Toray's 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.

NOTICE

1. Elements are preserved in sodium meta-bisulfite. Appropriate personal protective equipment should be worn when handling.
2. Toray accepts no responsibility for results obtained by the application of this information or the safety or suitability of Toray's products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each product combination for their own purposes.
3. All data may change without prior notice, due to technical modifications or production changes.
4. Consult Toray for element sizes not shown.