

Nanofiltration Membrane

Sanitary element for dairy and food processing

Toray's Nanofiltration (TNF-series & TMNF-series) membrane elements incorporate a piperazine amide composite membrane specifically designed for maximum retention of sugars and proteins, and high passage of monovalent salt ions.



Product Specifications

Model	Feed spacer thickness in. (mm)	Active area ft ² (m ²)
TNF 3838N1	0.031 (0.79)	75 (7.0)
TNF 3838N2	0.046 (1.17)	63 (5.9)
TNF 3840N1	0.031 (0.79)	75 (7.0)
TNF 7838N1	0.031 (0.79)	365 (33.9)
TNF 7838N2	0.046 (1.17)	276 (25.6)
TNF 8038N1	0.031 (0.79)	375 (34.8)
TNF 8038N2	0.046 (1.17)	310 (28.8)
TMNF 8040PS	0.031 (0.79)	375 (34.8)

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.

Material Specifications

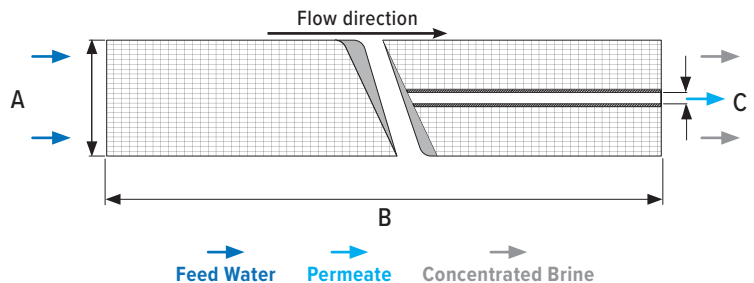
Feed spacer & element outer wrap	Polypropylene
Permeate tubes, Anti-telescoping device (ATD), inter-connectors for TMNF models	Polysulfone
Permeate carrier	Proprietary
Adhesives	Proprietary

Standard dimensions in. (mm)

Size	A Diameter	B Length	C Permeate tube ID
3838	3.8 (97)	38 (965)	0.83 (21.1)
3840	3.8 (97)	38.75 (984)	0.83 (21.1)
7838	7.7 (196)	38 (965)	1.125 (28.6)
8038	7.9 (201)	38 (965)	1.125 (28.6)
8040	7.9 (201)	40 (1,016)	1.125 (28.6)

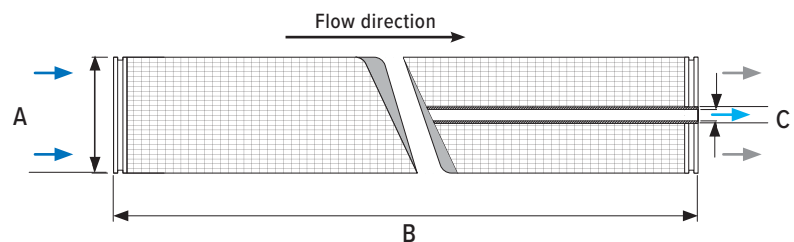
Spiral Elements in Sanitary Design (no ATD)

Components conform to FDA Regulation CFR Title 21 and USDA/3A Sanitary Standards



TMNF 8040PS (w/ ATD)

Components conform to FDA Regulation CFR Title 21



OPERATING LIMITS

Maximum operating pressure	800 psi (55.2 bar)
Maximum operating temperature	122°F (50°C)
Maximum cleaning temperature	122°F (50°C)
Acceptable operating pH range	3.5–10.5
Acceptable short-term cleaning pH range	1.8–11.5
Maximum pressure drop per element	15 psi (1.0 bar)
Maximum pressure drop per vessel	60 psi (4.1 bar)

Consult Toray for pressure limits when operating above ambient temperature

OXIDANT TOLERANCE

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

**Free chlorine should not be present in feed*

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.

Applications

Ideal applications include the desalting of milk and whey products (removal of monovalent ions) and to maximize the retention of lactose and larger organic molecules.

- Whey protein isolate
- Demineralized whey
- Lactose concentration
- Lactose-free milk
- Water recovery
- Sugar concentration
- Flavor concentration
- Wine de-alcoholization
- Beer de-alcoholization
- Diafiltration water

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.

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