

5K Ultrafiltration Membrane

Sanitary element for dairy and food processing

Toray's 5K Ultrafiltration (TUF-series) membranes provide a molecular weight cut-off of 5,000 Daltons. TUF-series models are net-wrapped (no tail), spiral-wound elements using a hydrophilic polyethersulfone (PES) asymmetric membrane specifically developed for maximum retention of milk and whey proteins and maximum productivity. 'HR' models incorporate a low flux membrane with maximum retention for special applications in the production of dairy, gelatin, sugar, and more.



Product Specifications

Model	Feed spacer thickness in. (mm)	Active area ft ² (m ²)
TUF5 3838N1 / TUF5 3838HRN1	0.031 (0.79)	73 (6.8)
TUF5 3838N2 / TUF5 3838HRN2	0.046 (1.17)	57 (5.3)
TUF5 4336N2	0.046 (1.17)	64 (5.9)
TUF5 6338N1 / TUF5 6338HRN1 / TUF5 6338HRN1T*	0.031 (0.79)	233 (21.6)
TUF5 6338N2 / TUF5 6338HRN2 / TUF5 6338N2T*	0.046 (1.17)	176 (16.4)
TUF5 6338N3 / TUF5 6338HRN3	0.065 (1.65)	137 (12.7)
TUF5 6338HRN4	0.080 (2.03)	35 (3.3)
TUF5 6438N1 / TUF5 6438HRN1	0.031 (0.79)	233 (21.6)
TUF5 6438N2 / TUF5 6438HRN2	0.046 (1.17)	176 (16.4)
TUF5 6438N3 / TUF5 6438HRN3	0.065 (1.65)	137 (12.7)
TUF5 6438HRN4	0.080 (2.03)	35 (3.3)
TUF5 7838N2	0.046 (1.17)	330 (30.6)
TUF5 8038N1 / TUF5 8038HRN1	0.031 (0.79)	360 (33.4)
TUF5 8038N2 / TUF5 8038HRN2	0.046 (1.17)	280 (26.0)
TUF5 8038N3 / TUF5 8038HRN3	0.065 (1.65)	230 (21.4)

*T indicates a tail that can be trimmed

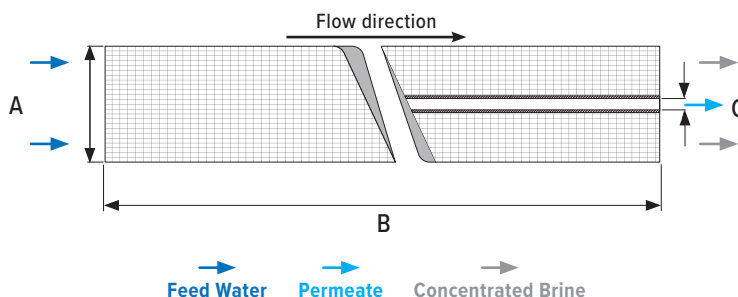
If you do not see a configuration or performance requirement that meets your needs, a team of product specialists is ready to develop custom engineered solutions. Please inquire within.

Standard dimensions in. (mm)

Size	A Diameter	B Length	C Permeate tube ID
3838	3.8 (97)	38 (965)	0.83 (21.1)
6338	6.3 (160)	38 (965)	1.138 (28.9)
6438	6.3 (161)	38 (965)	1.138 (28.9)
8038	7.9 (201)	38 (965)	1.125 (28.6)

Spiral Elements in Sanitary Design (no ATD)

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



Material Specifications

Feed spacer & element outer wrap	Polypropylene
Permeate carrier	Proprietary
Adhesives	Proprietary

OPERATING LIMITS

Maximum operating pressure	140 psi (9.7 bar)
Maximum operating temperature	131°F (55°C)
Maximum cleaning temperature	122°F (50°C)
Acceptable operating pH range	2.5–10.0
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)

Consult Toray for pressure limits when operating above ambient temperature

OXIDANT TOLERANCE

Chlorine tolerance (short-term cleaning at pH 11) ppm	180 ppm*
H ₂ O ₂ continuous	Tolerant
H ₂ O ₂ short-term cleaning <77°F (25°C)	Tolerant

*Chlorine tolerance, continuous injection is 2 ppm; chlorine tolerance, sanitizing is 50 ppm

Applications

Toray's TUF-series 5K membranes offer extra high retention of proteins, fats, and polysaccharides. TUF-series 5K HR (High-Rejection) membranes are ideal for maximum retention of organic molecules for special applications in dairy production, gelatin, sugar, and more.

- Lactose free milk
- Milk protein isolate
- White cheeses
- Soft cheeses
- Whey protein concentrate (WPC 35-85)
- Whey protein isolate (WPI-90)

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.