

TMR090 Series

Submerged Flat-sheet Membrane Bioreactor (MBR) for Biological Wastewater Treatment

Toray's PVDF membrane has numerous pores with uniform sizes evenly distributed across the membrane surface. The TMR090 series is an effective barrier against solids and bacteria to meet increasingly stringent water quality requirements and turn wastewater into a viable resource. The TMR090 series is suitable for small facilities, containerized package plants, and spaces with height limitations.



Pictured above: TMR090-100S

Flat Sheet Element	Units	Value
Model		TSP-50100
Nominal Pore Size	μm	0.08
Materials	Membrane	PVDF and PET non-woven fiber
	Supporting Panel	ABS
Effective Membrane Area	m ² (ft ²)	0.9 (9.7)
Dimensions (w x l x thk)	mm (in.)	515 x 1,059 x 13.5 (20.3 x 41.7 x 0.5)
Weight: dry / wet (reference)	kg (lbs.)	3.0 / 5.0 (6.6 / 11)

Module Characteristics — TMR090-100S

Total Membrane Area m ² (ft ²)	No. of Elements	Element block (EBL) structure	Module dry weight - kg (lbs.)	Dimensions (w x l x h)*	
				Millimeters	Inches
90 (970)	100	1 deck + 1 row	460 (1,014)	730 x 1,720 x 1,470	28.7 x 67.7 x 57.9

*Measurements exclude connection tube

Scouring Air Flow Rate¹: 1,000–1,300 NL/min/Module²

¹ The air supply equipment such as blower shall be designed based on the standard operating conditions.

² Air volume as being 0 degree C and 101.325 kPa (1 atm).

Applications

Sewage wastewater, Industrial wastewater, Food processing wastewater, Sludge thickening process

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Operating Range	
Temperature	5–40 °C (41–104 °F)
pH of Liquid* ¹	5–10
Mixed Liquor Suspended Solids	Not higher than 18,000 mg/L
Transmembrane Pressure	Not higher than 20 kPa (2.9 psi)
Cleaning Chemical Feed Pressure	Not higher than 10 kPa (1.45 psi)
Cleaning Chemicals and Concentrations	Sodium hypochlorite: 2,000–6,000 mg/L (10 < pH < 12) Oxalic acid: 0.5–1.0 wt% / Citric acid: 1.0–3.0 wt%
Materials	
Frame	304 stainless steel (316 SS optional)
Manifold	304 stainless steel (316 SS optional)
Air Diffuser	EPDM rubber / PVC / 304 SS (316 SS optional)
Connection ⁴	
Manifold	ANSI 2-inch
Air Diffuser	NTP 1 1/2-inch screw

¹ Except when the chemical cleaning with the designated chemical agents

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.

All data may change without prior notice, due to technical modifications or production changes. Please be sure to inquire about the latest product specifications.

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