

NHP210 Series

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

The NHP series incorporates thin membrane sheets for improved flexibility, allowing for more space between the flat sheets. This feature increases the range of movement and vibrations during air scouring, helping to dislodge sludge and improve cleaning efficiency with less energy consumption.



Pictured above: NHP210-300S

Flat Sheet Element	Units	Value
Model		TSP-50080
Nominal Pore Size	μm	0.08
Materials	Membrane	PVDF and PET non-woven fiber
	Nozzle	PE
Effective Membrane Area	m ² (ft ²)	0.7 (7.5)
Dimensions (w x l x thk)	mm (in.)	480 x 800 x 1.8 (18.9 x 31.5 x 0.07)
Weight: dry / wet (reference)	kg (lbs.)	0.25 / 0.5 (0.6 / 1.1)

Module Characteristics

Model	No. of Elements	Structure: Cassette x Deck	Total Membrane Area m ² (ft ²)	Dimensions (w x l x h)*	
				Millimeters	Inches
ECS035 (Cassette)	50	—	35 (377)	485 x 440 x 820	19.1 x 17.3 x 32.3
NHP210-300S	300	3 x 2	210 (2,260)	770 x 1,635 x 2,175	30.3 x 64.4 x 85.6
NHP210-600D	600	3 x 4	420 (4,521)	770 x 1,635 x 3,845	30.3 x 64.4 x 151.4

*Measurements include filtrate header and air diffuser pipes.

Weight - kg (lbs.)	Aeration block (dry)	Cassette / Element block (dry)	Module (dry)
ECS035 (Cassette)	—	17 (37)	—
NHP210-300S	40 (88)	195 (430)	235 (518)
NHP210-600D	40 (88)	390 (860)	430 (948)

Scouring Air Flow Rate ¹	NL/min/Module ²
NHP210-300S	1,000–2,000
NHP210-600D	1,300–2,000

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 ³	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	Polypropylene or ABS
Air Diffuser	Polypropylene (SS optional)
Connection ⁴	
Manifold	ANSI 1 1/2 inch flange or socket
Air Diffuser	ANSI 1 1/2 inch flange

³ Except when chemical cleaning with designated chemical agents.

⁴ UNI (ISO) flange is optional.

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.

Headquarters

Japan +81 3 3245 4542

Asia Pacific

China (TBMC) +86 10 8048 5216
Singapore (TAS) +65 6226 0525
Korea (TAK) +82 2 3279 7365

Americas (TMUS)

USA +1 (858) 218 2360

Europe & Sub-Saharan Africa (TMEU)

Switzerland +41 61 415 8710

Middle East (TMME)

Saudi Arabia +966 13 568 0091
U.A.E. +971 4 392 8811

 LinkedIn  YouTube

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