Product Datasheet

TORAY
Innovation by Chemistry

NHP210-300S/600D

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.)	477 x 800 x 2 (18.8 x 31.5 x 0.08)
Weight: dry / wet (reference)		kg (lbs.)	0.25 / 0.5 (0.6 / 1.1)

Module Characteristics

Model	No. of Elements	Structure: Cassette x Stack	Total Membrane Area m^2 (ft^2)	Dimensions (w x l x h)*	
				Millimeters	Inches
ECS035 (Cassette)	50	–	35 (377)	485 x 440 x 818	19.1 x 17.3 x 32.2
NHP210-300S	300	3 x 2	210 (2,260)	763 x 1,635 x 2,175	30.0 x 64.4 x 85.6
NHP210-600D	600	3 x 4	420 (4,521)	763 x 1,635 x 3,845	30.0 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)	—	18 (40)	—
NHP210-300S	40 (88)	200 (441)	240 (529)
NHP210-600D	40 (88)	400 (882)	440 (970)

Scouring Air Flow Rate[1]	NL/min/Module[2]
NHP210-300S	1,000–2,000 (Standard 1,000)
NHP210-600D	1,000–2,000 (Standard 1,000)

[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 SS (316 SS optional)
Manifold	PP
Air Diffuser	PP
Connection	
Manifold	ANSI 1 1/2 inch flange using M12 bolts/nuts One flange per each element block
Air Diffuser	ANSI 1 1/2 inch flange using M12 bolts/nuts Two flanges per Aeration block

[3] Except when chemical cleaning with designated chemical agents.

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