

**TORAY Membrane Module Specification Sheet**

- Model : Submerged Membrane Module for MBR “MEMBRAY” NHP210 series

**Table 1 Specifications of Element (TSP-50080)**

Model name		TSP-50080
Membrane configuration		Flat sheet
Application		Filtration of activated sludge
Filtration method		Suction filtration
Nominal pore diameter (μm)		0.08
Effective membrane area (m <sup>2</sup> )		0.7
Dimensions (mm)	Total width	480
	Total height	800
	Thickness	1.8
Weight (kg)	Dry	0.25
	Wet (Reference)	0.5
Main material	Membrane	PVDF and PET non-woven fiber
	Nozzle	PE

**Table 2 Specifications of Cassette and Module**

Model name		ECS035 (Cassette)	NHP210-300S	NHP210-600D
Number of membrane elements		50	300	600
Cassette structure		-	3 cassettes x 2 decks	3 cassettes x 4 decks
External dimensions (mm)	Width	485 (excluding nozzle / hose)	770	770
	Length	440	1,635	1,635
	Height	820	2,175	3,845
Dimensions excluding permeate header, and air diffuser (mm)	Width	/	565	565
	Length		1,460	1,460
	Height		2,090	3,760
Weight (kg)	Module (dry)	NA	235	430
	Aeration block (dry)	NA	40	40
	Cassette/Element block (dry)	17	195	390
	Cassette/Element block (sludge clogging) <sup>*1</sup>	145	970	1,940
Material	Frame	-	304SS(316LSS is available as option)	
	Permeated water manifold	Polypropylene		
	Air diffuser,	-	Polypropylene (SS is available as option)	
Connection <sup>*3</sup>	Manifold	ANSI 1 1/2 inch flange		
	Air diffuser	-	ANSI 1 1/2 inch flange	
Operating range	Temperature	5-40 degree C		
	pH <sup>*2</sup> of liquid	5-10		
	MLSS	Not higher than 18,000 mg/L		
	Trans-membrane pressure	Not higher than 20 kPa (200 mbar)		
	Cleaning chemicals feed pressure	Not higher than 10 kPa (100 mbar)		
	Cleaning chemicals and chemicals concentration	Sodium hypochlorite (effective chlorine concentration) : 2,000-6,000 mg/L, pH is around 12 Oxalic acid : 0.5-1.0wt% Citric acid : 1.0-3.0wt%		
	Scouring Air Flow rate (NL/min/Module) <sup>*3</sup>	330 - 670	1,000 - 2,000 1,300 (Standard)	1,300 - 2,000 1,500 (Standard)

\*1 The weight assumed in the case of sludge clogging between elements.

\*2 Except when the chemical cleaning with the designated chemical agents..

\*3 "NL" means air volume as being 0 degree C and 101.325 kPa (1 atm).