

NHPA050-1C

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

The NHPA series incorporates thin membrane sheets for improved flexibility, same as current NHP series, allowing more membrane area per footprint.

In addition, the NHPA series has unique features that can be applied to various situations such as water capacity, height and width since the module configuration can be adjusted while maintaining the operational features of the current NHP series.



Pictured above: NHPA050-1C

| 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 |
| NHPA050-1C | 50 | 1 x 1 | 35 (377) | 738 x 660 x 1,404 | 29.1 x 26.0 x 55.3 |

*Measurements include filtrate header and air diffuser pipes.

| Dry Weight - kg (lbs.) | Aeration Block | Cassette / Element Deck | Module |
|------------------------|----------------|-------------------------|----------|
| ECS035 (Cassette) | — | 18 (40) | — |
| NHPA050-1C | 20 (44) | 50 (110) | 70 (154) |

Applications

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

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| Scouring Air Flow Rate ¹ | NL/min/Module (ft ³ /min/Module) ² |
|-------------------------------------|--|
| NHPA050-1C | 330–670 <Standard 430> (12–24 <Standard 15) |

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).

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 | 304 SS (316 SS optional) |

Connection

| | |
|--------------|---|
| Manifold | ANSI 1 1/2 inch flange using M12 bolts/nuts One flange per each deck |
| Air Diffuser | ANSI 1 1/4 inch flange using M12 bolts/nuts Two flanges per Aeration block |

³ Except when chemical cleaning with 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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