

# HiOx™ Ultra-Fine Bubble Panel Aeration System

## An Advanced Energy Efficient System Which Can Increase Transfer Efficiency by up to 30%

### Applications

- High-rate aeration processes.
- Activated sludge.
- Membrane bioreactor.

### Advantages

- Energy savings.
- High SOTE (Standard Oxygen Transfer Efficiency).
- Low flux.
- High floor coverage.
- Very small bubbles.
- Independent testing (ASCE).
- Lightweight units.
- Minimal piping.
- Long membrane life.
- Easy membrane replacement.



Single HiOx™ Aeration Panel Underside

### The HiOx™ Advantage

The most energy intensive operation in any activated sludge plant is associated with the requirements for mixing and aeration. The HiOx™ ultra-fine bubble diffuser reduces that energy requirement by increasing the transfer efficiency by 20% to 30%. This is achieved by producing smaller bubbles and having high floor coverage, giving a low flux rate. This higher transfer efficiency translates to reduced air demand and thereby to reduced operating costs.

#### The Diffuser

The diffuser membrane is made of high-strength polyurethane supported on two-ply polyurethane with a nylon reinforcement body, separated into several strips by radio frequency (RF) welds. This is supported on a stainless steel frame with 6 anchors and threaded bolts for precise levelling. Each diffuser measures 3.6 m by 1.2 m, and weighs 32 kg.

### How It Works

The HiOx™ produces 1 mm diameter ultra-fine bubbles which decreases the electrical consumption of the system. 5-10 mm bubbles are found in many coarse bubble aeration systems, while 2-3 mm bubbles are found in many fine bubble aeration systems. Each panel diffuser covers a large area, roughly equivalent to 4.3 square meters. These specially developed, lightweight panels are covered in high strength perforated polyurethane.

The slick surface of the polyethylene membrane is self-cleansing. This cleaning effect is further facilitated by the flexing caused by air flowing through the diffuser panels.



Single HiOx™ Aeration Panel Topside

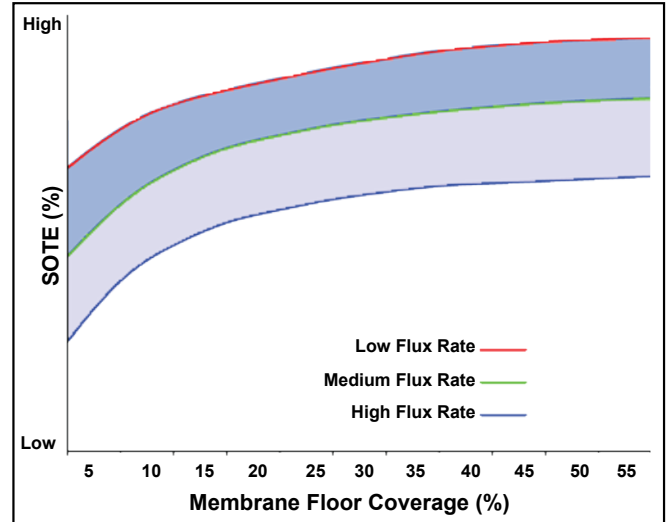
## Installation & Maintenance

HiOx™ offers a lower installation cost as each diffuser covers a large area and has an aeration area equivalent to one hundred standard 22 cm discs. As the number of diffusers is greatly reduced, so is the amount of pipe work required to feed them. This design feature also significantly reduces installation costs. Each diffuser has its own feed line and isolation valve, which allows the operator to fine tune the air distribution to best match a plant's changing needs and isolate one or two panels if required. Simply flexing the membrane keeps the HiOx™ panel at peak operating efficiency. The HiOx™ system is suitable for both retrofitting and new installations.

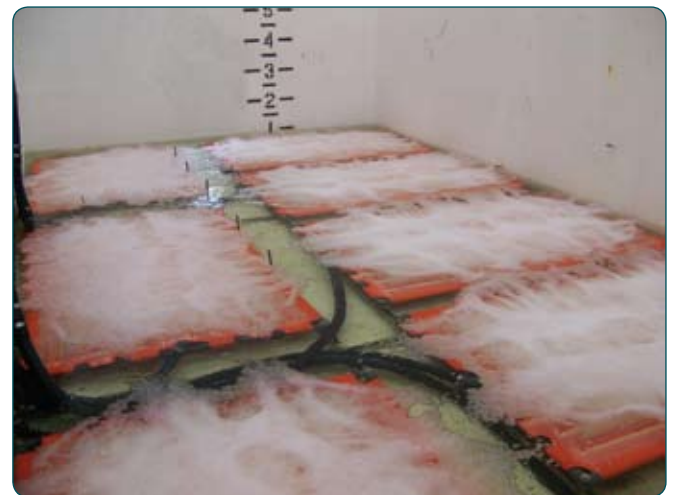
By changing from fine bubble aeration to a HiOx™ ultra-fine bubble aeration system, an existing works can be upgraded to increase treatment capacity without the need for additional tanks.

## Experience

HiOx™ aeration panels have been in successful operation since 1990, with the latest panels offering new features to ease installation and maintenance. Each polyurethane membrane has a product life of up to 12 years. Individual panels can be easily replaced by plant staff.



HiOx™ Aeration Basin



Panels in Clean Water - Showing Aeration Pattern



HiOx™ Aeration Basin

turning water around ...®

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