

# Aeration Diffusers

fine bubble aeration system



## Applications

- Waste water treatment
- Activated sludge aeration
- Thermal destratification of reservoirs
- Aquaculture & public aquaria

## Description

The diffusers are among the most robust and versatile fine bubble diffusers commercially available. They have been manufactured for 20 years and are a robust, reliable and consistent design

Fine bubble diffusion is inherently more effective than coarse bubble diffusion in providing a greater mixing action and aeration efficiency. We are not aware of any other fine bubble diffuser that can compare with performance.

The diffusers are of semi-flexible construction 32mm in diameter and of variable length up to 3 metres depending on the air, oxygen or carbon dioxide through-put required. The diffusers have their own ballast and will stay on the bottom of the aeration tank without the need to secure them to the base. (negative buoyancy)

## Construction

The diffusers are manufactured from a very heavy duty polyester fabric tube, a nylon distributor hose runs down the centre of the tube. Between the nylon hose and polyester tube there is ballast comprising of spherical glass beads.

The diffuser is banded using 316 stainless steel (covered in a sheath) compressed on to the nylon inner tube with a nitrile rubber bush. The metal end fittings are 316 stainless steel. As standard each diffuser is fitted with a 1/2" hose tail for connection of the diffuser to 1/2" flexible hose. The hose tail is screwed onto the stainless steel fitting on the end of diffuser.

A NRV, (non return valve) is fitted into the diffuser.



## Cleaning

Solid diffusers have problems with carbonate and iron deposition which blocks the diffusers. Solid diffusers are therefore very difficult to clean and maintain. Flexible membrane diffusers stay largely free of fouling, however they need a heavy frame or are anchored to the base of the aeration tank, this makes the diffusers much more expensive and difficult to handle, it also makes them difficult to use in lagoons, or in retrofitting systems.

Our diffuser is a hybrid unit, because it is semi flexible, carbonates and metal oxides simply crack off the unit. Also because our diffuser has its own internal ballast it does not need to be anchored to the base of the tank. If any cleaning or maintenance is required, the diffuser is simply pulled out of the tank using the air hose. The tank can be full of water and the air blowers running when the diffuser is removed.

## Life of diffuser

Normal operating life is from 10 to 15 years

## Installation notes

The diffuser requires an air blower or compressor, to drive the system. The system pressure required depends upon the depth of the water & system losses. Positive displacement 100% oil free blowers are usually the best solution.

The air blower should be located adjacent to the air diffusers.

If plastic pipe is used, then the first 6 meters of pipe work should be metal in order to bring the air temperature down to at least 90 deg C in the plastic pipe.

In lakes and lagoons, make an air ring main and come off the ring main with ½" flexible hose, fit a diffuser on the end of the Hose, and then simply drop the diffuser into the liquid.

## Oxygen Transfer performance

Waste water treatment and activated sludge applications.

(based on 3 m @ 20 °C @ 20% saturation in kg/hr)

Length (m)	Diameter (mm)	Weight (kg)	Air flow (m3/hr)	KgO2/hr
1	32	1.5	3	0.18
2	32	3	6	0.36
<b>3</b>	<b>32</b>	<b>4.5</b>	<b>9</b>	<b>0.54</b>

### Standard stocked length

Aquaculture and environmental application

(based on 1.5 m @ 20 °C @ 60% saturation in kg/hr)

Length (m)	Diameter (mm)	Weight (kg)	Air flow (m3/hr)	KgO2/hr
1	32	1.5	3	0.045
2	32	3	6	0.09
3	32	4.5	9	0.135

More technical figures available on request.



Oxygen probe available