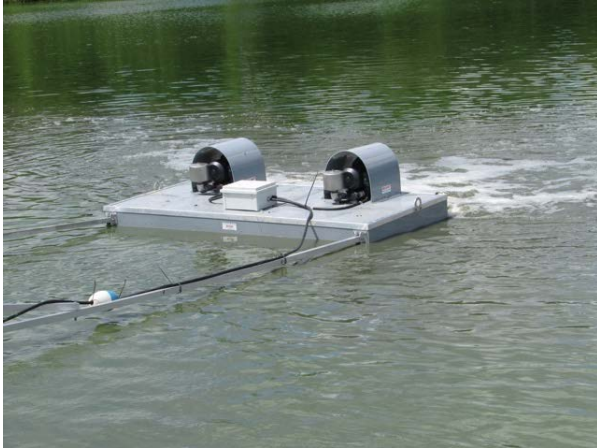


LAGOON MASTER™

Sludge Activating Aerator



LAGOON MASTER V1
With Onboard 2HP Blowers



LAGOON MASTER V2
With Shore Mounted 3HP Blowers

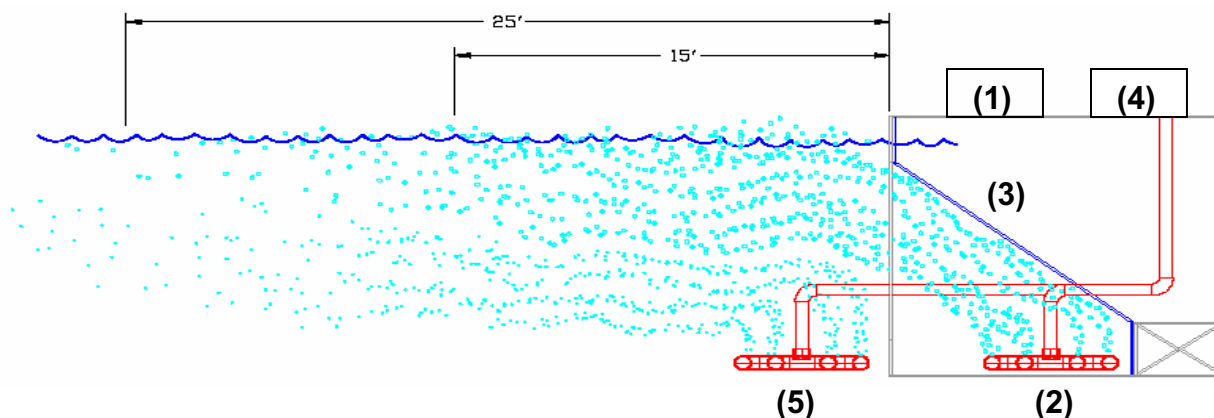
The Reliant ***LAGOON MASTER*** Water-Moving and Sludge Activating Aeration System is not just an aerator, but it continuously, and slowly, moves water along the bottom of a lagoon/pond delivering large amounts of dissolved oxygen (DO) using a minimum of energy. When compared to standard paddlewheel, vortex, static tube, hose diffusion, spray (fountain), or aspirating aerators, the ***LAGOON MASTER*** is more efficient, less costly to operate, and requires less maintenance.

The first version of the ***LAGOON MASTER V1*** was introduced in 2010 with two 2 HP (1.5 kW) regenerative blowers mounted on its top. One blower provides the water moving energy, continuously pushing water along the bottom of 1 to 4 acres (.4-1.6 hectares) (depending upon water depth) of a pond or lagoon. The other 2 HP (1.5 kW) blower provides DO at a rate of 3.8 lbs per HP/hr - all being driven into the sludge to enhance sludge digestion.

In 2020 the **Version 2 *LAGOON MASTER*** was introduced. The only change is that the **V2** utilizes shore-based blowers, which allow blower air inlet filter cleaning more convenient to the Operator.

The use of this proven aeration technology will (1) provide better overall water quality through continual oxidation and the elimination of odors, (2) eliminate the zero-oxygen dead-zone on the lagoon/pond bottom, (3) provide constantly moving water to assist in organic sludge breakdown, and (4) provide dissolved oxygen at a controlled rate in order to save energy and oxidize waste gases. One ***LAGOON MASTER*** will move over 9 million gallons (34,100m³) of water in a 24 hour period.

HOW DOES THE *LAGOON MASTER* WORK?

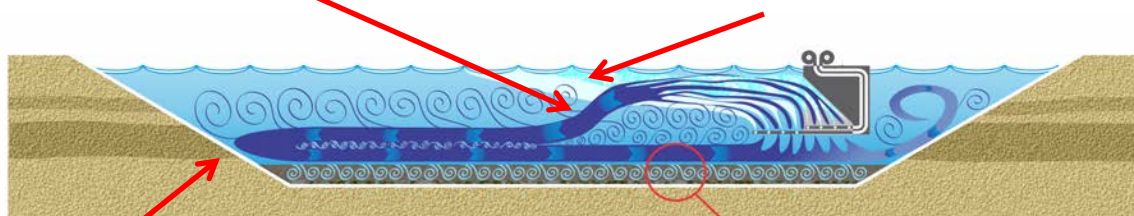


The key, and patented, elements of the *LAGOON MASTER* is its two regenerative blowers, each connected to a set of bubble-forming diffuser grids. The Phase 1 blower (1) runs 24 hours per day and feeds the rear-most diffuser grid (2) which allows large 1-2 cm. bubbles to rise quickly into a 45° baffle (3), pushing water at a velocity capable of moving over 9 million gallons (34,100 cu meters) of water per day. These large bubbles stay on the surface for up to 25' (7.6 meters) in front of the *LAGOON MASTER*. When the Phase 2 blower (4) is initiated, either manually or automatically, it feeds air to the industrial diffuser grid (5) located forward of the base of the *LAGOON MASTER*. The bubbles emitted from the diffusers are approximately .8 mm in diameter. These small bubbles are kept underwater for up to 35' (10.7 meters) due to their inability to rise above the larger, faster and horizontally moving bubbles caused by the primary, coarse bubble diffuser. The 25' to 35' (7.6 to 10.7 meters) of residence time for the small bubbles, at 1 atmosphere of pressure, allows for oxygen diffusion into the water, providing the addition of continuous increases in dissolved oxygen.

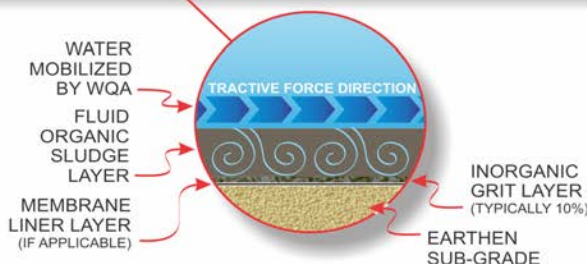
HOW THE *LAGOON MASTER*, IS DIFFERENT FROM OTHER SURFACE AERATORS

QUIESCENT WATER FORCES TURBULANT SURFACE FLOWING WATER TO FALL UNTIL IT HITS THE SLUDGE ON THE BOTTOM. THIS TURBULANCE ON THE BOTTOM BEGINS SLUDGE FLUIDIZATION. (Note how the falling flow of water drops through the oxygenated bubble plume and brings dissolved oxygen to the sludge)

FINE BUBBLES, UNABLE TO RISE ABOVE TURBULANCE OF COARSE BUBBLE FLOW, FINALLY BREAKING THE SURFACE



OPPOSITE SHORE TURNS WATER BACK TOWARD THE INTAKE OF THE AERATOR, WHICH PULLS 9 MILLION GALLONS OF WATER THROUGH ITSELF PER DAY. THIS FLOWING WATER COMPLETES THE FLUIDIZATION OF THE SLUDGE





The ***LAGOON MASTER*** out of the water, ready for installation. Weighing less than 1100 pounds (499 kg), it is simple to install because it floats in less than 4 feet (1.2m) of water depth. It can be tethered to the bank or out in the lagoon, whichever is preferred.

In the water, the ***LAGOON MASTER*** provides a low profile. Notice that there is very little white water in front of the unit. An unspoken rule never heard from other aerator manufacturers is that “white water is wasted energy and oxygen.” This lack of white water speaks volumes of the efficiency of this lagoon water moving and aeration system.



There are 2 Versions of ***LAGOON MASTER*** from Which to Choose

The original **Version 1** has the blowers mounted on top of the unit making it a compact Single system that can be anchored to the berm with struts or in the middle of the lagoon/pond with concrete anchors. The **Version 1** utilizes 2 – 2HP (1.5kW) blowers.



Late in 2020 Reliant Water was able to introduce the **Version 2 *LAGOON MASTER*** Sludge Activating Aerator with shore mounted blowers. This design utilizes 2 - 3HP (2.2kW) blowers driving air through 2 - 2"ID EPDM hoses. The blowers are on the berm of the lagoon/pond where blower air intake filters can be easily cleaned without the use of a boat. The aerator body itself utilizes all stainless steel hose connection hardware. Berm struts or SS cable can be used to hold the aerator body in place.

Maintenance

The only maintenance required on any ***LAGOON MASTER*** is cleaning a stainless steel air intake filter. These filters will last for years but occasional cleaning is required.

LAGOON MASTER Lagoon/Pond Aerator

Features

- Only 4 HP (3 kW) [V1] or 6 HP (2.2kW) [V2] of maximum energy use
- No propellers or shafts underwater to foul
- No belts or gearboxes to break or require maintenance
- Non-corrosive materials of construction—Anodized aluminum, HDPE, Stainless Steel

Benefits

- Continuously moves the lagoon/pond water along the bottom, causing vertical mixing, for complete de-stratification, oxidation and odor elimination, algae bloom reduction, and natural sludge digestion.
- Delivers more dissolved oxygen to the water per hour – where it is needed – in the sludge
- Lowers energy costs by up to 80%
- Practically maintenance free for years
- Eliminates trapped nitrogen and ammonia gases, and improves BOD/COD levels

ADVANTAGES OVER OTHER LAGOON AERATION SYSTEMS

- Less energy usage on an annual basis - per area covered.
- Over 9 million gallons (34,100,m3) of bottom water movement in a 24 hour period.
 - Guarantees continual water turnover and de-stratification throughout the lagoon – mixes algae and eliminates blue-green algae stratification.
 - Moves ALL the lagoon's sludge in a slow, non-violent manner – allowing for sludge turnover for continual degradation by the indigenous bacteria.
- No annual motor maintenance—oil changes, belt changes, etc. The only maintenance on a ***LAGOON MASTER*** is to clean two air intake filters occasionally.
- The addition of up to 15 pounds (6.8 kg) of dissolved oxygen per hour.

THE *LAGOON MASTER* LAGOON/POND AERATOR

Finally, a lagoon or pond aerator that is designed for function rather than power.

The ***LAGOON MASTER*** Water-Moving Aerator provides the ability to re-habilitate waste lagoons by providing a cost effective way to break-down sludge naturally, using minimal energy, and putting aeration throughout the water column – where it is required. Algae blooms are reduced and DO is continuously provided to the bottom sludge to enhance natural organic digestion.

ASK US ABOUT OUR MUNICIPAL/INDUSTRIAL LEASING PROGRAM

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