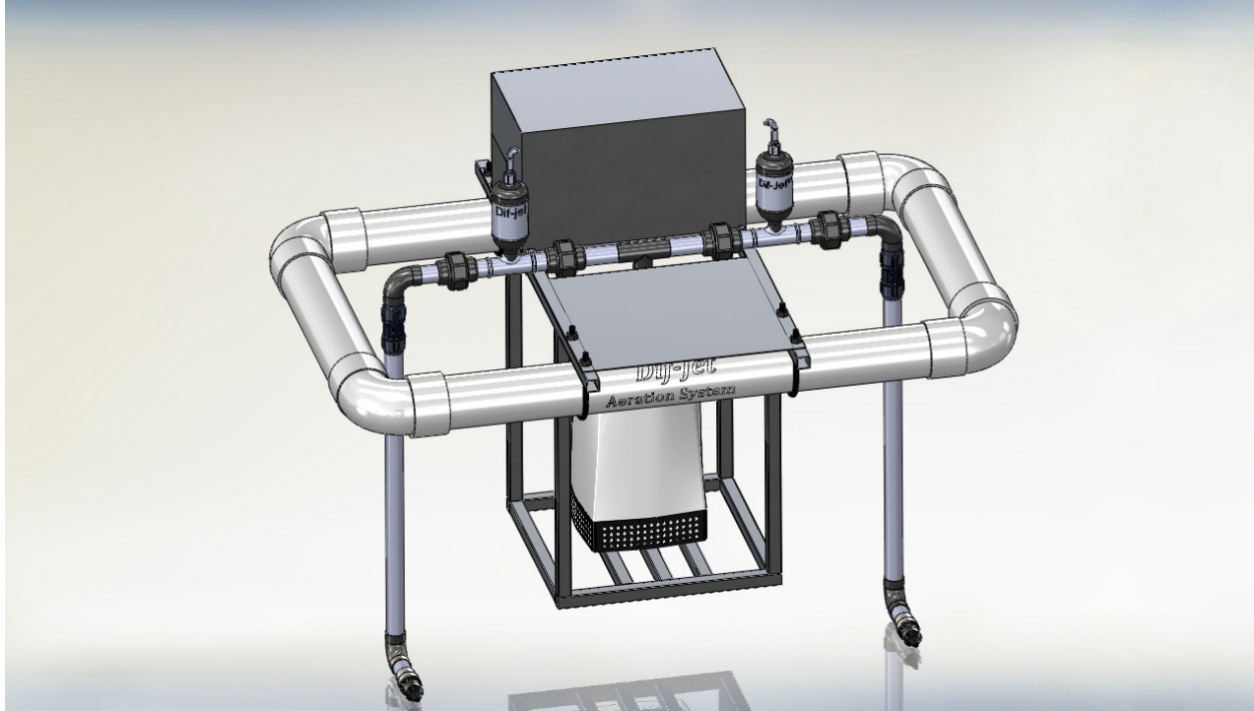


Distributed Aeration Of Ponds For De-Stratification & Algae Control



Fortrans is pleased to introduce the new patented Dif-Jet™ Floating Aeration System. This system aerates water above the surface and pumps the aerated water under pressure back into the pond through unique discharge configurations (patent pending) to produce large areas and variable depths of aerated water.

No Cleaning & Efficient Circulation

One of the most sought after features of the Dif-Jet™ Aerator is that it will not foul with biofilm debris and slime or scale up in hard water. The system can be configured to deliver aerated water to depths of 24 feet or more. When the system is configured with the right selection and balance of discharge nozzles, it can create large patterns of circulation at selected depths.

De-Stratification

Benefits of aeration with a Dif-Jet™ system include de-stratification in the pond. The system has the ability to add and mix aerated water at desired depth using low pressure supplied air. (8-10 psi) The discharge pipes are equipped with Pro-Jet mixing nozzles and pump out aerated water at 70 GPM each ensuring mixing and circulation into deeper water

Control Algae

The systems can be very helpful in controlling algae. Planktonic algae are photosynthetic organisms that require sunlight to live. The Dif-Jet™ system, by de-stratifying the pond, can force algae into hypolimnetic waters where they are starved of sunlight and unable to thrive. (Hudson and Kirschner, 1997), Kortman, et al (1994) found dramatic increases in transparency due to elimination of cyanobacteria blooms as a result of aeration in lakes and ponds.

Nutrient abatement is another mechanism by which aeration can control algae. (Cason, 2007) phosphorus concentration are often directly correlated to algal abundance (Fitzgerald, 1970 (Cole, et. Al, 1993) In shallow lakes and ponds, when anoxic conditions occur, sediments can release phosphorus at levels equal to external sources. Anoxia is the controlling factor in maintaining elevated phosphorus in the water column (Kelton and Chow Frazer, 2005) Under aerobic conditions phosphorus remains trapped in the sediment and unavailable to algae. Aeration has been shown to be effective in restoring oxic conditions at the sediment layer. (Lock, et. Al, 2000 Fitzgerald, 1970).

Aerator Overview

Most bubble producing aeration devices depend on bubbles rising through the water column to transfer air to the water. Water will only absorb a very small amount of the oxygen (max 9 to 10 mg/L in cold water, and lesser amounts in warm water) regardless of confusing claims of oxygen transfer. Without a means of circulation, the bubbles only affect the water immediately above the aerator. For wide area large volume coverage many aerators must be used. Some bottom dwelling aeration systems such as perforated hoses or pressurized diffusers become fouled or buried in silt and must be removed or cleaned with acid flushed through the aerators.

Other devices entrain compressed air in water and push it down into the water with propellers or by adding air to axial pumps designs which have great flow but little pressure. Venturi designs use suction to draw air into the water but are not effective at depths over 3 to 4 feet. An operator cannot increase incoming air pressure or volume in a venturi as one can with the Dif-Jet™. Venturi devices work by pumping water through a pipe that has a narrowed diameter at a point within the pipe. The water flows through the choke point and creates a suction that will draw air into the water flow and mix the water and air.

Pump Aerators spray water into the air and generally produce a circular pattern of aerated water around the aerator at a depth of 12" to 18". Paddle wheel aerators efficiently transfer oxygen to water in terms of lbs/O₂/hr/HP but create small shallow zones of aerated water.

Standard Aerator Efficiency claims are hard to replicate in the field and often actual performance is only determined by measuring dissolved oxygen levels before and then during operation of the aeration device. Dif-Jet™ Aeration Systems are available for sale, pilot studies or rental.

Note: Higher capacity pumps and additional Dif-Jets are available for larger requirements.