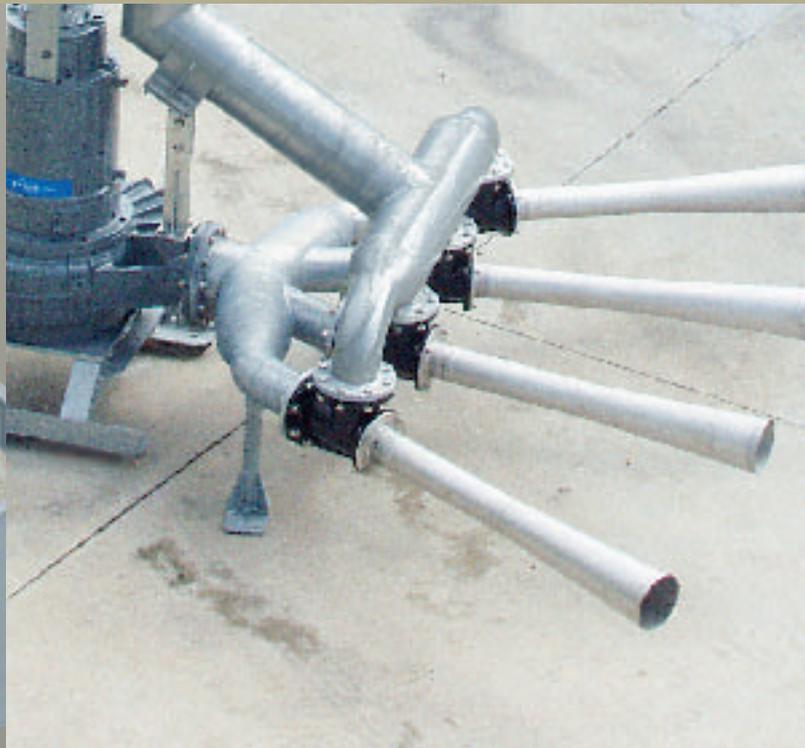




# The Jet Aerator from Flygt

For improved wastewater treatment

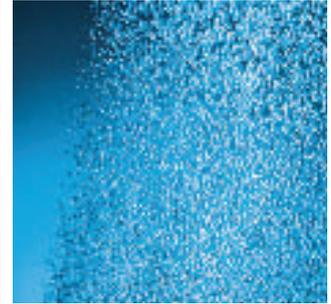
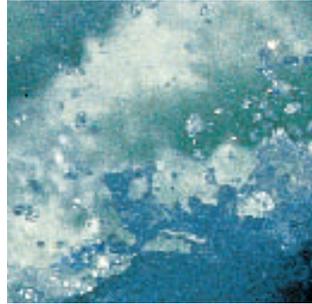


Flygt



ITT Industries  
*Engineered for life*

# Treating all forms of wastewater requires the right experience



As the world's population rises and urbanisation increases, the scarcity of water becomes more of a threat. Much of this problem can be directly related to the failure to properly treat wastewater. It is everyone's responsibility worldwide, to ensure that this "borrowed" water is released back into the environment properly treated.

## Treatment process

The most common and effective way to treat wastewater is the activated sludge process - a concentrated version of nature's own method. Utilising oxygen, bacteria and micro-organisms reduce organic material, measured as Biochemical Oxygen Demand (BOD) or Chemical Oxygen Demand (COD). Reduction of nutrients, phosphorous and nitrogen is also possible.

## Aeration technique

Due to the large amount of oxygen needed in the aeration process, oxygen has to be constantly added to the wastewater. This can be done by injecting either air or oxygen gas into the water.

Flygt provides several different aeration products, ranging from self contained units to fine bubble diffused systems, complete with compressors, pipes and control equipment, for wastewater treatment plants.

## Experience

Suppliers of aeration systems must have a thorough knowledge of the treatment process, and have experience at calculating critical oxygen requirements to supply the best equipment needed.

At Flygt our engineers have been working with such calculations for many years and they can provide the

necessary information to ensure that you get the right equipment for your aeration needs.

## The jet aerator

The jet aerator has been specifically designed for use in small to medium sized tanks and basins. It is easy to install, operate and maintain, with no need for any compressors.

The self contained unit can handle a series of tasks including BOD/COD reduction, mixing, homogenisation, odour control and oxidation.



# Confidence in the right system

1.



The jet aerator is particularly advantageous in small and medium sized racetrack or rectangular aeration tanks in wastewater treatment plants. This is also applicable to industrial plants, where ease of installation, maintenance and flexibility of operation, rather than immediate efficiency, is required. And unlike other aeration systems the jet aerator does not require any blowers, air distribution piping, control valves or related equipment.

## Versatile system

The jet aerator is manufactured to be as flexible as the rest of the Flygt product range. It can be used in almost any size or shaped tank and in order to provide the best efficiency, Flygt submersible pumps are connected to the jet aerator as standard. Each jet aerator can be fitted with the most efficient pump and number of ejector pipes (1-4) to suit a specific tank.

2.



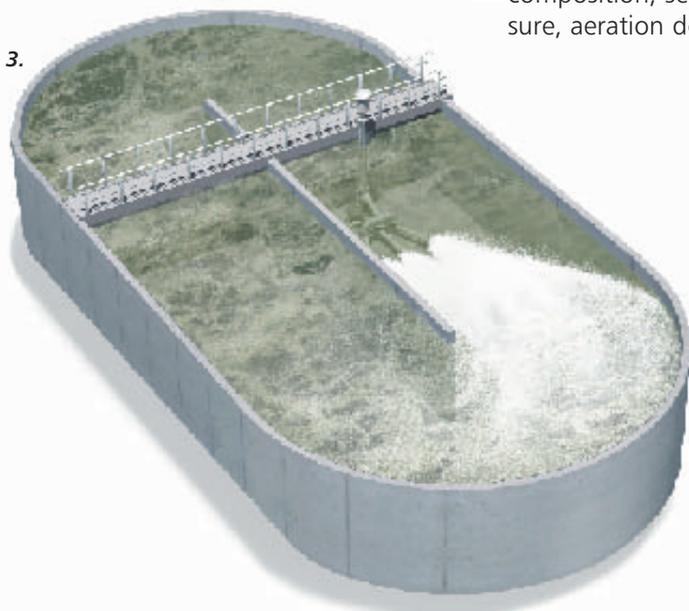
A jet aerator can be installed without emptying a tank or basin.

## Maximum effect

Fulfilling all treatment process requirements is dependent on the effective aeration and mixing of the liquid. In order to select the proper aeration system; the Standard Oxygen Requirement (SOR) must be calculated, and the necessary mixing requirements must be determined.

The process oxygen requirements are influenced by wastewater composition, selected process regime, loading, temperature, pressure, aeration device and mixing requirements.

3.



*Installations in activated sludge plants (illustrations are not drawn to scale)*

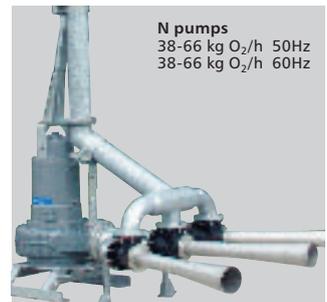
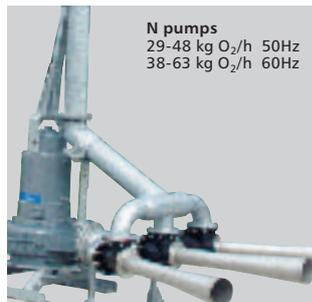
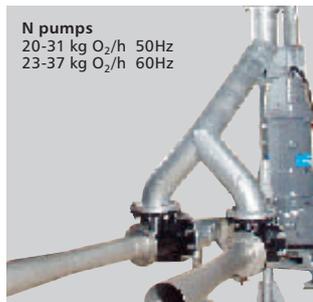
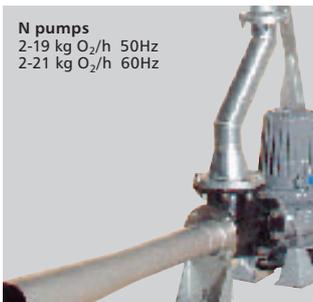
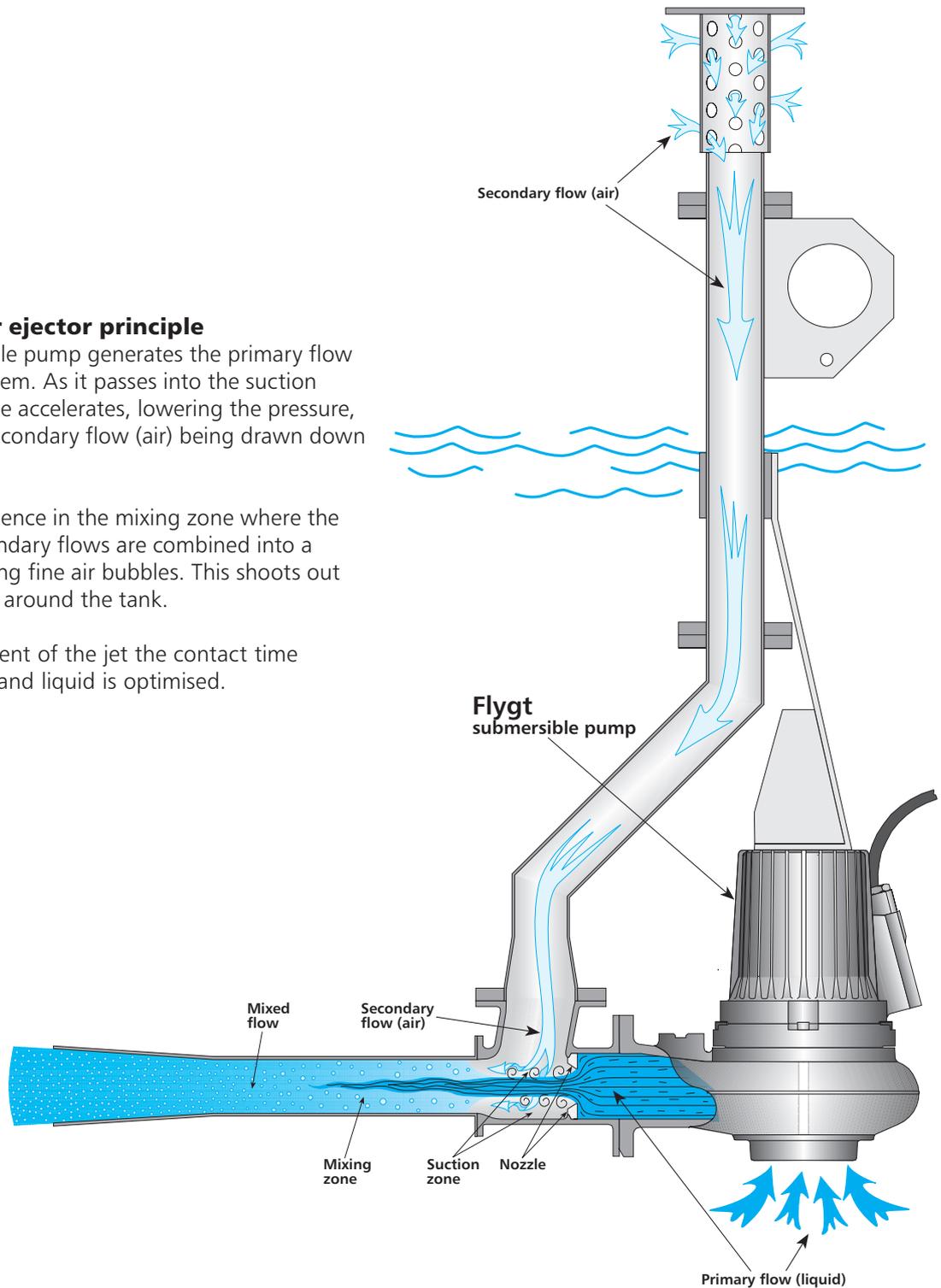
**1.** Rectangular aeration tank. **2.** Oxidation for odour control or increasing dissolved oxygen content. **3.** Racetrack or oxidation ditch.

### The jet aerator ejector principle

A Flygt submersible pump generates the primary flow (liquid) in the system. As it passes into the suction zone, the flow rate accelerates, lowering the pressure, resulting in the secondary flow (air) being drawn down into the ejector.

This causes turbulence in the mixing zone where the primary and secondary flows are combined into a liquid jet containing fine air bubbles. This shoots out of the nozzle and around the tank.

With free movement of the jet the contact time between oxygen and liquid is optimised.



The different available combinations of the jet aerator provide the standard oxygen transfer rates (listed beside each unit) at water depths of 1-6 meters in clean water.

# The Flygt advantage

Flygt products offer a lot of advantages as they operate submerged. This includes taking up no space above ground and being out of sight. In fact the only part of the jet aerator unit which is visible, is the air intake valve.

The larger jet aerators also come with a Flygt N-pump, with patented N-technology that results in sustained high efficiency.

## Reduced costs

The jet aerator does not require special housing or a superstructure to support it, as a result construction costs can be reduced by as much as 60%. The self contained jet aerator can be repositioned as necessary to achieve maximum operating efficiency in any basin, regardless of size or shape. And the submersible Flygt pump, which powers the system, lowers operating costs.

## Non clogging

The ejectors' large nozzles allow solids to pass through them easily without clogging. The revolutionary design of the N-pump with its self cleaning impeller, reduces the risk of clogging further.

## Improved working conditions

The jet aerator does not cause spray or dispersion of liquid particles in the atmosphere, minimising contamination of the air and area surrounding the tank. Also, once submerged the system operates silently.

## Controlling the costs of operation

Further savings can be made by using the jet aerator together with Flygt's control systems, which have been developed to save time and costs in the operation and maintenance of submersible products. They provide you with reliable and efficient remote monitoring and control of your aeration system.

## Effective mixing

If extra motion is needed in the tank, the Flygt range of submersible mixers provide powerful and efficient mixing, whatever size of tank you have. Flygt mixers have specially designed propellers that generate a maximum of thrust with a minimum of kW input.

## Technical specifications

To find out more about the jet aerator contact your local Flygt sales office for a copy of the technical specifications.



## Worldwide service network

No two treatment tanks, basins or aeration systems will be alike, so the level of maintenance and support that you require from your service partner will differ according to your situation. With Flygt, you can choose the type of support package that precisely meets your needs.

From simply supplying products to your specifications, to full service assistance on system planning, design, construction, implementation, operation or maintenance: Flygt's total service concept means that you get the service you need, on your terms.



Flygt is a leading supplier of fluid handling solutions. Our products are used everyday in wastewater treatment plants, sewage systems, aqua-agriculture, the process industry and numerous other applications.

With over 50 years of experience in the submersible liquid handling market, Flygt can provide the knowledge needed to ensure you get the best efficiency from the jet aerator. We can also supply monitoring and control equipment, which is designed specifically for use with submersible pumps and mixers.

Flygt is represented in over 130 countries and has more than 40 sales companies around the world.



[www.flygt.com](http://www.flygt.com)