We live and breathe aeration

What is it that makes our aeration systems the trusted choice the world over?

The fact that ITT Water & Wastewater have been designing, installing and testing aeration equipment at wastewater treatment plants for more than 40 years.

In fact we have designed the aeration systems in some of the world’s largest wastewater plants. And we are well experienced in engineering reliable and efficient systems regardless of the challenges. The complexity of the interaction between mixers and aeration in oxidation ditches is understood by us.

SETTING STANDARDS THE WORLD OVER
Our expertise in this area empowers us to deliver standard setting aeration systems that offer low energy costs, low maintenance, and a better working environment.

We have the experience that ensures we always offer the smartest design. And we are always complementing our knowledge base with first hand lessons learnt from meeting new and diverse challenges from around the world.

OUR BRAND HERITAGE
Sanitaire has been the leading brand in diffused aeration since the 1960s. Today, we have an installed base of some 20 million discs around the world.

Our fine bubble disc aeration systems are more detailed than any other. This enables us to guarantee the amount of delivered oxygen and ensure the highest levels of efficiency in aeration functions.

Our long presence in the industry means that we have a strong system design knowledge base today. We collect and analyze performance data in our laboratory, test tank and in the field. These thousands of test measurements are the database we draw on for the continuous development of our engineering design tools.

TIMELINE OF INNOVATIONS

<table>
<thead>
<tr>
<th>Year</th>
<th>Innovation</th>
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<tbody>
<tr>
<td>1973</td>
<td>first all-stainless steel coarse bubble diffused aeration system</td>
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<tr>
<td>1978</td>
<td>first Sanitaire Ceramic Disc Diffuser</td>
</tr>
<tr>
<td>1983</td>
<td>first Sanitaire In-Place HCI Gas Cleaning system</td>
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<tr>
<td>1986</td>
<td>first Sanitaire Membrane Disc Diffuser system</td>
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1993
new E membrane introduced

2000
new Silver Series II diffuser with enhanced SOTE and a lifelong performance

2002
new low pressure Silver Series LP also for high fouling applications
The expertise behind every function

What is it ITT Water & Wastewater offers you that nobody else can within aeration? The deepest expertise together with a burning desire to deliver the best within wastewater treatment.

To us, it has all to do with functions. We look at a function as the specific aeration task that a particular product needs to perform at each particular stage of the treatment process.

Our emphasis on functions demands that we look beyond products, to an entire treatment plant, together with its operational challenges and goals. We make sure that the right functions are in place because this is key to smooth, cost-effective operations and trouble-free maintenance. And we set our focus on performance attributes.

After years of working closely with you, it stands to reason we have the expertise to think how you work.

ABSOLUTE QUALITY
We offer our customers design, project management, installation and start-up services, as well as testing of oxygen transfer efficiency. We can guarantee to deliver the standard oxygen transfer that you need. We even guarantee the amount of delivered oxygen in relation to the power consumption according to European and US standards.
Aeration expertise in action

“We urgently required a new aeration system at Beckton sewage treatment works, one of the largest in Europe. Durability was paramount to ensure adequate oxygen levels were maintained throughout the aeration process, as it was essential to continue to meet the demanding Environment Agency standards. We assessed ITT Water & Wastewater’s system as the best in its class for its durability and lifetime costs.

ITT Water & Wastewater installed and delivered the new system on budget and on schedule. The system has exceeded our expectations, performing robustly after takeover with minimal maintenance. The first phase delivery has now been in operation for six years with no significant loss in performance. Needless to say, we are very happy.”

David Watts, Project Manager, Thames Water, United Kingdom

“Our municipal treatment facility upgrade is delivering better than expected cost savings. ITT Water & Wastewater installed a diffuser system for two wastewater basins. The idea was to save money during summer time, but we’re seeing significant improvements in our electricity consumption even during winter.”

Steve Witbeck, Roseburg Project Manager, CH2M Hill-OMI, USA

“We chose ITT Water & Wastewater’s ABJ ICEAS sequence batch reactor system to help reduce energy costs at our new wastewater treatment plant in Chenyang District, Qingdao. New city plants in the region now have to deal with nitrogen and phosphorus removal, and we needed a system that could handle these strict requirements, and a capacity of 50,000 tons per day.

Thanks to ITT Water & Wastewater’s competence in technology and cost savings, the system has truly proved itself during its five years of operation, easily reaching the planned treatment capacity, and reducing initial investment and operating and maintenance costs.”

Mr. Pan Ning, Chief officer of Chenyang Waste Water Treatment Plant, China
Aeration products for maximum effectiveness

FINE-BUBBLE AERATION
Sanitaire fine-bubble diffused aeration is the most efficient in wastewater applications, i.e. the amount of oxygen transferred to water per input energy is among the highest in the market.

Our Silver Series II membrane maintains a high efficiency for a large number of years. The diffusers are typically used in high-rate, conventional and extended aeration activated sludge processes, SBR, MBR etc and in any tank shape.

Our long fabrication experience has resulted in a proven system with very robust construction. This means shorter installation time coupled with high reliability. These systems can be installed in all types of tanks.

COARSE-BUBBLE AERATION
The Sanitaire coarse bubble diffuser is designed to introduce oxygen and provide mixing in wastewater and sludge. For tougher applications such as sludge or industrial wastewaters, coarse bubble is often the best solution. This includes aerobic sludge digestion, sludge storage, flow equalization, channel aeration, grit chambers, industrial applications and any similar application requiring a non-clogging, maintenance-free diffuser system.

The wide band wastewater diffusers are suitable for air on/air off applications particularly in industrial wastewaters. These diffusers can be installed on liftable grids, which mean they can be lifted in and out of the tank without the need for draining.

JET AERATION
Flygt jet aerators are specifically designed for small- to medium-sized tanks of all shapes. They have well proven performance in activated sludge and aerobic digestion.

The jet aerator consists of a Flygt submersible N-pump and one to four ejectors. The pump design and large clog-free nozzle ejectors provide efficient and reliable operation over long duty periods. The jet aerator does not require any additional equipment such as blowers, piping systems or control valves and can be installed without emptying the tanks.

More information available at www.ITTtreatment.com
Aeration functions

Grit chamber aeration
Aeration to achieve fat and light solids flotation.

Retention basin aeration
Aeration to reduce odor.

SBR aeration
Aeration in oxic stage of the process for BOD-removal.

Conventional aeration
BOD removal and possible nitrification.

Oxidation ditch aeration
Aeration in oxic zone for BOD-removal.

Aerobic stabilization
Sludge aeration for aerobic stabilization purposes.

Sludge storage aeration
Aeration of sludge for odor control and homogenization.

Dewatering supernatant aeration
Aeration of supernatant from sludge dewatering unit.
What can ITT Water & Wastewater do for you?

Integrated solutions for fluid handling are offered by ITT Water & Wastewater as a world leader in transport and treatment of wastewater. We provide a complete range of water, wastewater and drainage pumps, equipment for monitoring and control, units for primary and secondary biological treatment, products for filtration and disinfection, and related services. ITT Water & Wastewater, headquartered in Sweden, operates in some 140 countries across the world, with own plants in Europe, China and North and South America. The company is wholly owned by the ITT Corporation of White Plains, New York, supplier of advanced technology products and services.

www.ittwww.com