



# Sanitaire TurboBLOWERS

TURBOLIGHT AND TURBOMAX BLOWERS FOR WASTEWATER AERATION

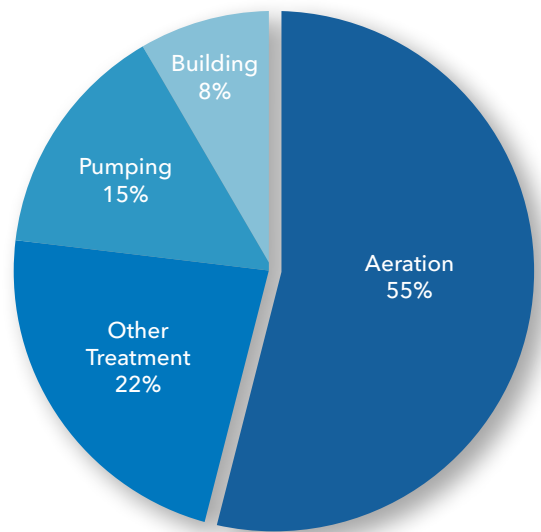


**SANITAIRE**  
a xylem brand



## Not Your Traditional Blowers

In a typical wastewater treatment plant, the blowers in an aeration system are the single highest energy consumer. Still, some of the most common established blower technologies do not deliver the required results. Sanitaire TurboBLOWERS are direct-drive, high-speed, turbo blowers using the latest airfoil bearing technology to deliver unmatched results with low energy consumption.



**Typical energy consumption at a municipal wastewater treatment plant.** Based on research conducted by Xylem with a subset of our customers.

### What Is a High-Speed Turbo Blower?

A turbo blower produces compressed air with an impeller rotating at high speed. To reach high turbo speeds, centrifugal/turbo blowers have traditionally used standard motors and additional gears, resulting in increased complexity and a need for maintenance-intensive airflow control parts. High-speed turbo blowers use a direct-coupled impeller that is connected to a permanent magnet synchronous motor operated by a variable frequency drive (VFD) to reach higher speeds and at the same time enable flow control.

Sanitaire TurboBLOWERS utilize this technology. They are single stage, centrifugal-type turbo blowers consisting of state-of-the-art air bearings of bump type, a high precision aluminum alloy impeller, a high-speed permanent magnet motor, an inverter VFD and a premium controller to deliver the required airflows at the highest energy efficiency.



Xylem employee assisting in startup of TurboMAX 600 (400kW) blower.



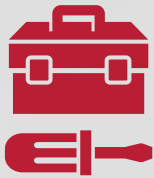
## **ULTIMATE EFFICIENCY**

Energy consumption can be reduced by up to 40% due to the highly engineered direct drive turbo design and carefully selected components.



## **ENSURED RELIABILITY**

A uniquely durable airfoil bearing, specifically designed for frequent on/off applications, is the integral component that drives longer blower life.



## **MINIMAL MAINTENANCE**

Routine maintenance is nearly eliminated, with only periodic filter replacement required.

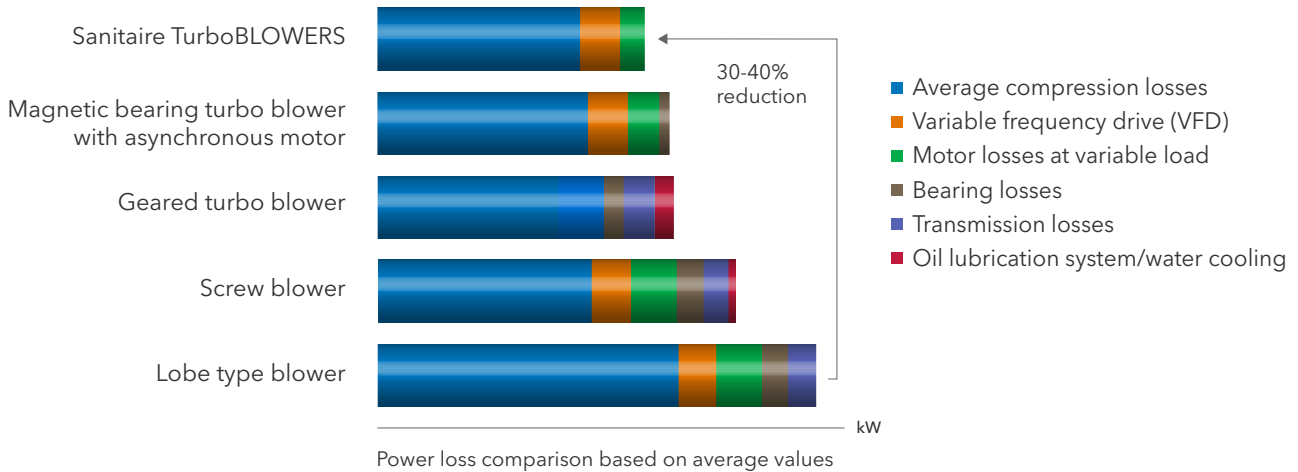


## **OPTIMIZED OPERATOR EXPERIENCE**

Easy leveling using the adjustable feet simplifies installation, while the intuitive controls and low noise and vibration result in a high quality work environment.

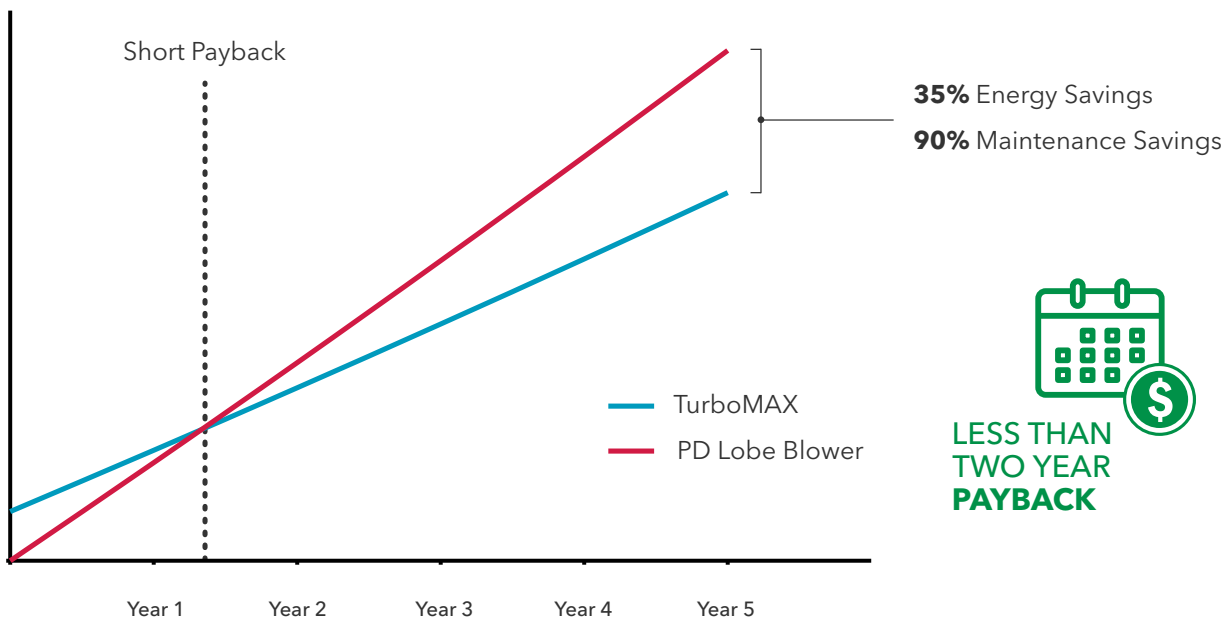
# Minimize Power Loss, Optimize Payback

Sanitaire TurboBLOWERS provide up to 30-40% reduction in power consumption on average, compared to alternative blower technologies.



## Make Your Investment Count

It's important to consider both CAPEX and OPEX when selecting a blower. This evaluation compares costs associated with Sanitaire TurboMAX blowers with costs associated with positive displacement (PD) lobe blowers.



Replacement of existing positive displacement lobe blowers with TurboMAX 150 (110 kW).

# Expertly Designed Core Components Reduce Power Losses

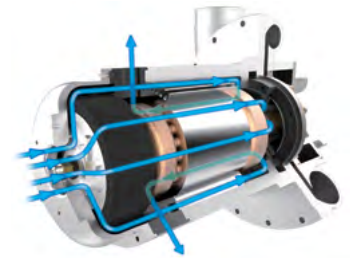
## The Core Drive Unit/Impeller

Solid impeller design directly correlates to higher precision and high efficiency. The 5-axis, CNC-milled impeller is made from aluminum with an anodized coating ensuring strength and corrosion protection. The impeller is designed for potential turndown capabilities from 40% to 100% at constant pressure providing wide flow range, and a high surge margin allowing for greater stability.



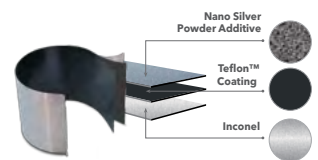
## Patented Motor Cooling

High-speed motors for turbo machines are small in size with high power rating. The ability to keep the motor cool directly affects output and life expectancy. High pressure models also use liquid cooling in addition to the patented air cooling as needed.



## Airfoil Bearing - Nano Silver Triple Treatment Bearing (NSTB)

The airfoil bearing uses an air curtain generated by the rotor's revolution to control the levitation of the rotating assembly, without the need for ancillary equipment or backup power supply. The nano silver triple treatment increases the durability of the material and extends the life of the bearing. When tested, the NSTB can withstand over 55,000 starts and stops and 80,000 hours of normal operation for all blower sizes.



## High-Speed Permanent Magnet Synchronous Motor (PMSM)

The PMSM is a superior technology that only has minor losses with load changes compared to standard induction motors. The shaft is directly connected to the impeller, resulting in zero transmission losses. The motor size is only 1/10 of a conventional motor.



Easy filter replacement

## Key Components for Exceptional User Experience

- Easy installation with no need for special foundations or time consuming alignment
- Modular design and small footprint with easy access points
- Low noise
- No vibration
- No oil lubrication and minimal maintenance

# Controls for Optimal Performance

## Integrated Blower Controls

- Color touch screen panel
- Supports multiple communication options
- Built-in surge protection
- Multiple control modes
- Real-time performance monitoring
- Alarm and fault monitoring with history
- Filter pressure loss monitoring with alert
- Danfoss Drives Vacon® VFD with coated electrical circuit boards
- Lockable main circuit breaker
- TurboMAX features a hot climate installation option to separate the electrical components from the main enclosure

## Intuitive User Interface

Both TurboMAX and TurboLIGHT feature Human Machine Interface (HMI) color touchscreens to manage settings and allow users to monitor system status and history. Both blower series are available with multiple language options.

The HMI touchscreens show detailed information with real-time measurements to monitor blower parameters including motor speed, discharge pressure, flow rate, filter pressure drop, power consumption and suction temperature.

## Efficient Group Control

Multiple Sanitaire TurboMAX or TurboLIGHT blowers can be automatically controlled with the plug-and-play Sanitaire Blower Group Controller (BGC) to achieve optimum efficiency.

Designed by our aeration experts, the Sanitaire BGC uses an advanced control algorithm to manage duty, assist, and standby blowers based on defined setpoints. By equalizing blower speeds and rotating blower duty based on total hours run and number of starts, the Sanitaire BGC not only improves blower efficiency but also extends blower life and reliability.

This single point of blower control is commissioned by Sanitaire engineers and offers simple integration with the plant SCADA system for ease of plant operation.



## Real-time Asset Intelligence

Real-time remote monitoring for data-driven service operations is readily available with Xylem Avensor®. The secure digital service provides automated alarm notifications and online visibility into operating status.

An easy-to-interpret dashboard of operating parameters and diagnostic indicators, such as flow, oxygen levels, and blower speed, empowers operators to anticipate potential failures, implement condition-based maintenance, and optimize asset availability. Information from Xylem Avensor can also be integrated into existing plant data systems.

# Performance to Meet Your Needs

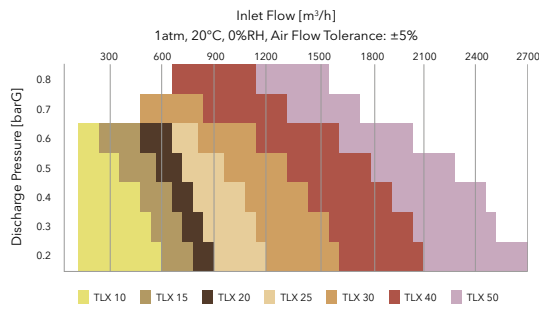
Primarily used in activated sludge plants for municipal and industrial wastewater treatment, the Sanitaire TurboBLOWERS portfolio includes a range of blower sizes to match oxygen production to the requirements of your application.

Each blower size has several models, allowing more flexibility in designing a system that accurately meets your needs without over- or under-sizing the blowers.

	<b>TurboLIGHT</b>	<b>TurboMAX</b>
Blower power	7.5-37 kW	7.5-600 kW
Flow rates per blower	300-2,700 m <sup>3</sup> /hr	300-41,000 m <sup>3</sup> /hr
Treatment plant size	2,000-70,000 PE	2,000-1.5M+ PE

## TurboLIGHT Performance Map

chart is for approximations only



The **TurboLIGHT** series is a standardized offering, ideal for small to medium wastewater treatment plants with performance ranges shown in the figure to the left.

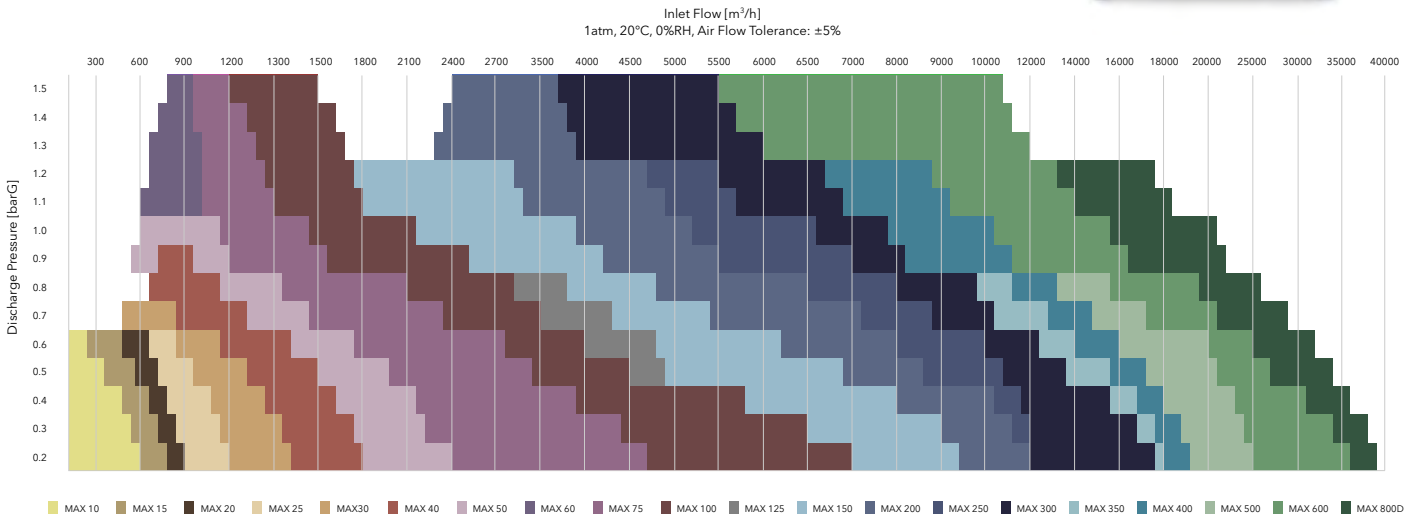


The **TurboMAX** series allows for greater customization with more optional features, and is ideal for a broad range of wastewater treatment plants with performance as shown in the figure below.



## TurboMAX Performance Map

chart is for approximations only



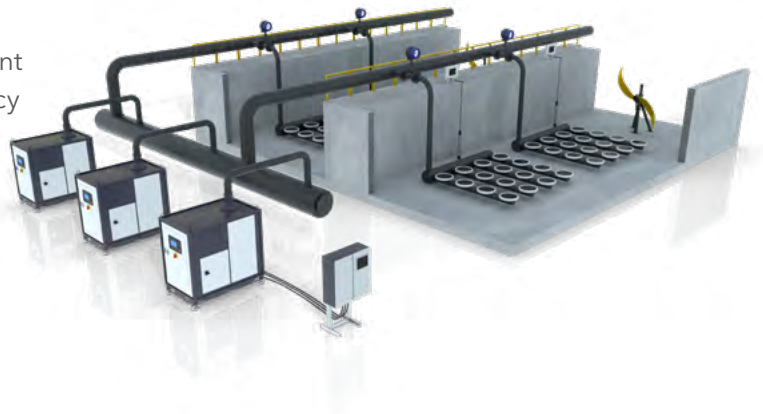
# Designed to Meet Your Needs

## Blower options and installation accessories

Available options and certifications	TurboMAX	TurboLIGHT
Check valve	✓	✓
Expansion joint	✓	✓
Discharge silencer	✓	✓
Harmonic filter	✓	
AC reactor	✓	
Outdoor enclosure IP54	✓	✓
Hot climate version with separate control cabinet (maximum 30 m cable)	✓	
Blower Group Controller	✓	✓
CE approval	✓	✓
Wimes approval	✓	

## Expertise you can trust. We guarantee it.

Xylem's unique understanding of the impacts of the aeration and blower design, along with the submersible mixer selection, allows us to design a biological treatment solution to meet your demands for both energy efficiency and process stability. Additionally, with the use of our leading CFD modeling capabilities with real, validated, mathematical models, we can design state-of-the-art aeration systems that leverage Xylem's process and equipment knowledge.



**For more information please contact your local Xylem office.**



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