PERFORMANCE³.

HOW EFFICIENT IS YOUR AERATION REALLY?

AERZEN

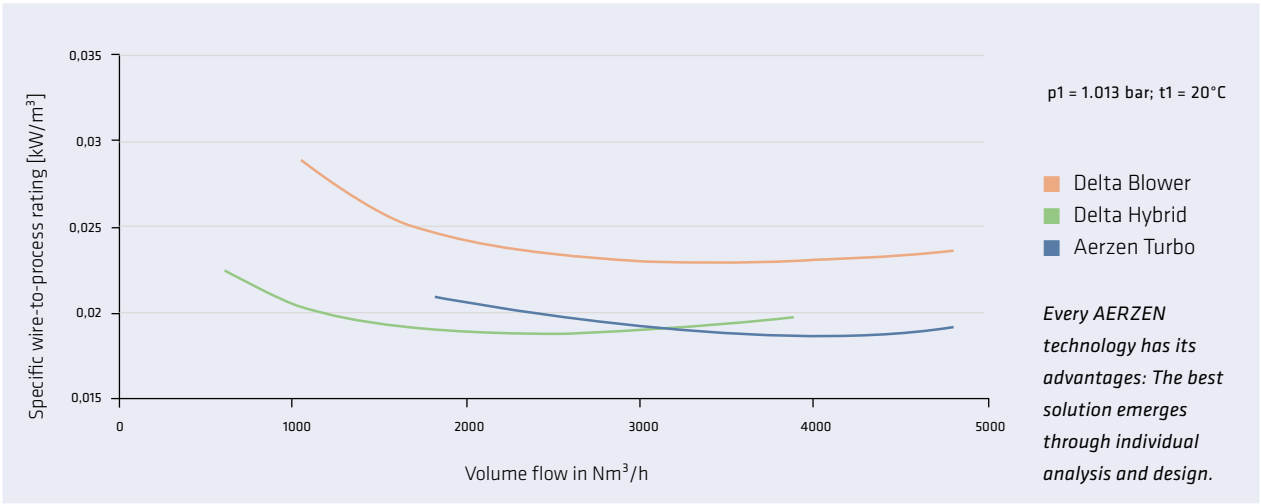
FAR MORE EFFICIENCY WITH **PERFORMANCE³** FROM AERZEN.

Biological aeration accounts for 60% to 80% of a wastewater treatment plant's total energy requirements. Aeration therefore offers the greatest potential for savings, while also posing the biggest challenges. Large fluctuations in load profiles and varying degrees of contamination depending on the region, time of day, season, or precipitation level make supply levels highly variable. Performance³ from AERZEN represents the most efficient, high-performance, and flexible blower solution ever developed for oxygen supply. It offers customised machine configuration based on cutting-edge technologies. Let's talk about the savings potential in your wastewater operation.

Performance³.
Three blower technologies, one goal: maximum efficiency.
Performance³ means not only the product portfolio consisting of the Delta Blower positive displacement blower, the Delta Hybrid rotary lobe compressor, and the Aerzen Turbo turbo blower, but also and especially the individual solution and the best possible interplay of technologies. Because every technology has its strengths, as well as its physical limits. For example, turbo blowers stand out from a design standpoint due to their unbeatable energy efficiency. At the same time, the control range of turbo machines is limited to between 40% and 100%, and the efficiency decreases under partial-load operation. This is where rotary piston machines really shine, however. They offer a control range of 25% to 100% and offer almost the same level of efficiency even under partial-load operation. When searching for the most efficient solution, it's therefore necessary to configure the machine technologies to meet the individual requirements of each plant. Whereas it used to be common practice to install blowers of just one size, today's plants often feature a mix of different sizes or even technologies. Savings of up to 30% are possible. The AERZEN Performance³ concept offers you a customised solution based on blower, hybrid, and turbo technologies.

Optimal use of savings potential – the mix does it.
It takes solid expertise and years of experience to configure the ideal technology type. AERZEN has developed high-performance machines for the industry for more than 150 years and is a pioneer in innovative product solutions. The wastewater experts from AERZEN support you in designing your best process performance with optimal machine configuration.

A comparison of power requirements and volume flow ranges.



Integrated approach: energy efficiency, control range, investment costs, service

Convincing facts: Turbo, Blower, Hybrid - the next generation.

Aerzen Turbo G5plus

- Increases energy efficiency by up to 10% compared to conventional turbo technology
- Extended lifetime thanks to innovative AERZEN air foil bearing
- Low-maintenance and space-saving design
- 100% oil-free

Delta Blower G5plus

- Increases energy efficiency by up to 5%
- Space-saving thanks to even more compact design
- User-friendly and low-maintenance
- Absolutely oil-free according to TÜV certificate ISO 8573-1, Class 0
- Patented discharge silencer without absorption material

Delta Hybrid

- Savings of up to 15% compared to standard blowers
- Absolutely oil-free according to TÜV certificate ISO 8573-1, Class 0
- Patented discharge silencer without absorption material
- Reduced maintenance costs

Faster return on investment.

Today, real efficiency means adapting the choice of blower technology precisely to the load profiles in wastewater treatment plants. That's because every plant is different and has its own requirements. With a customised Performance³ design, you can combine the advantages of every machine technology. That means maximum energy savings with an optimal control range and minimal investment volumes. Process optimisation can pay for itself within two years, depending on the plant. With an individual Performance³ product portfolio, consisting of Blower, Hybrid, and Turbo, we always find the most efficient and suitable solution for you.

Handle load changes precisely: technological diversity consisting of Aerzen Turbo, Delta Blower, and Delta Hybrid. Crucial for optimal performance.

REALISE PERFORMANCE³. IDENTIFY AND CONTROL LOAD CHANGES.

The basis for an energy-efficient wastewater treatment operation with efficient processes is a status analysis and an evaluation of current operating data. We call this innovative solution AERaudit. AERsmart: The forward-looking integrated control system from AERZEN optimally allocates the required volume flow to the corresponding machines and their individual efficiencies. The result is previously unattained efficiency values approaching the theoretical optimum and significant savings of up to 15%.

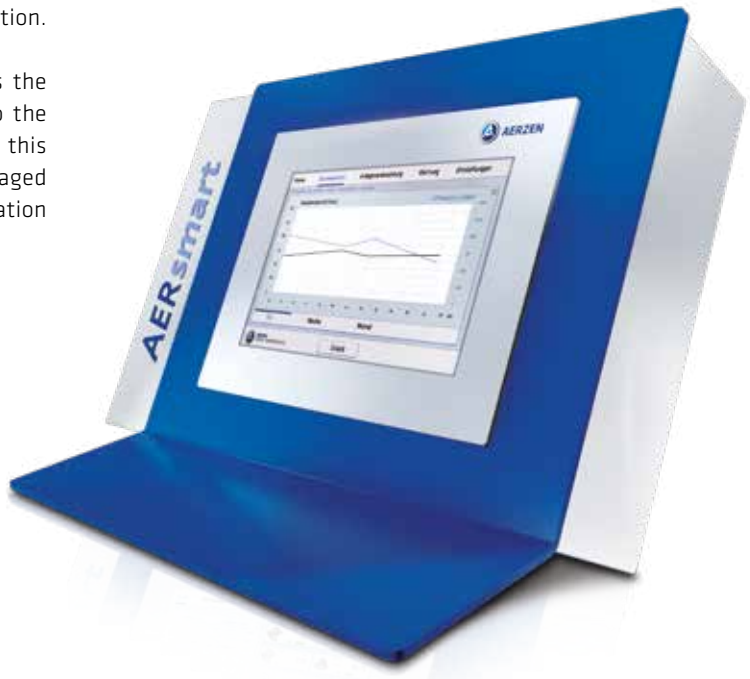
Determining volume requirements with AERaudit.
On-site measurement
The AERZEN service team lends transparency to the numbers from your blower station. A mobile measuring station is used to record the relevant aeration data. Volume flow, system pressure, temperature, and kW rating are measured live and recorded in the form of load profiles.

Analysis:
The recorded data is analysed carefully and extensively at AERZEN headquarters. Even the smallest low and peak loads are evaluated. Based on the results, our experts develop one or more concepts that are tailored to your requirements and as efficient as possible.

Report:
All the data from your blower station is presented transparently and in detail. Temperatures, load profiles, and energy expenditures are visualised in the form of diagrams and explained in depth. We also show you your individual Performance³ solution with the ideal machine configuration. In addition, we show how much savings potential there is in terms of energy and CO_2 and what ROI times could be achieved.

AERsmart integrated control system.
With AERsmart, the overriding control system for the blower group, you can perfect the performance behaviour of Performance³ even further. The software ensures that the air volumes are optimally allocated to the corresponding technologies and their individual efficiencies. This makes it possible to achieve outstanding efficiency levels that can closely approximate the theoretically possible ideal value. At the same time, AERsmart offers maximum transparency and a 360-degree view of your blower station.

The machine control system also efficiently allocates the required oxygen supply to the packages connected to the system, even when sudden changes in load occur. In this way, light, medium, and heavy loads can be managed efficiently – and always with the best possible configuration for every plant combination. AERsmart ensures reliable administration of the control management and the rules for a compressor group. Combined operation, using various blower sizes - controlled by AERsmart - raises the efficiency in aeration tanks to a new level. It is also possible for third-party equipment and installations with just one machine technology to be operated via AERsmart.



AERsmart also allows the integration of third-party equipment.

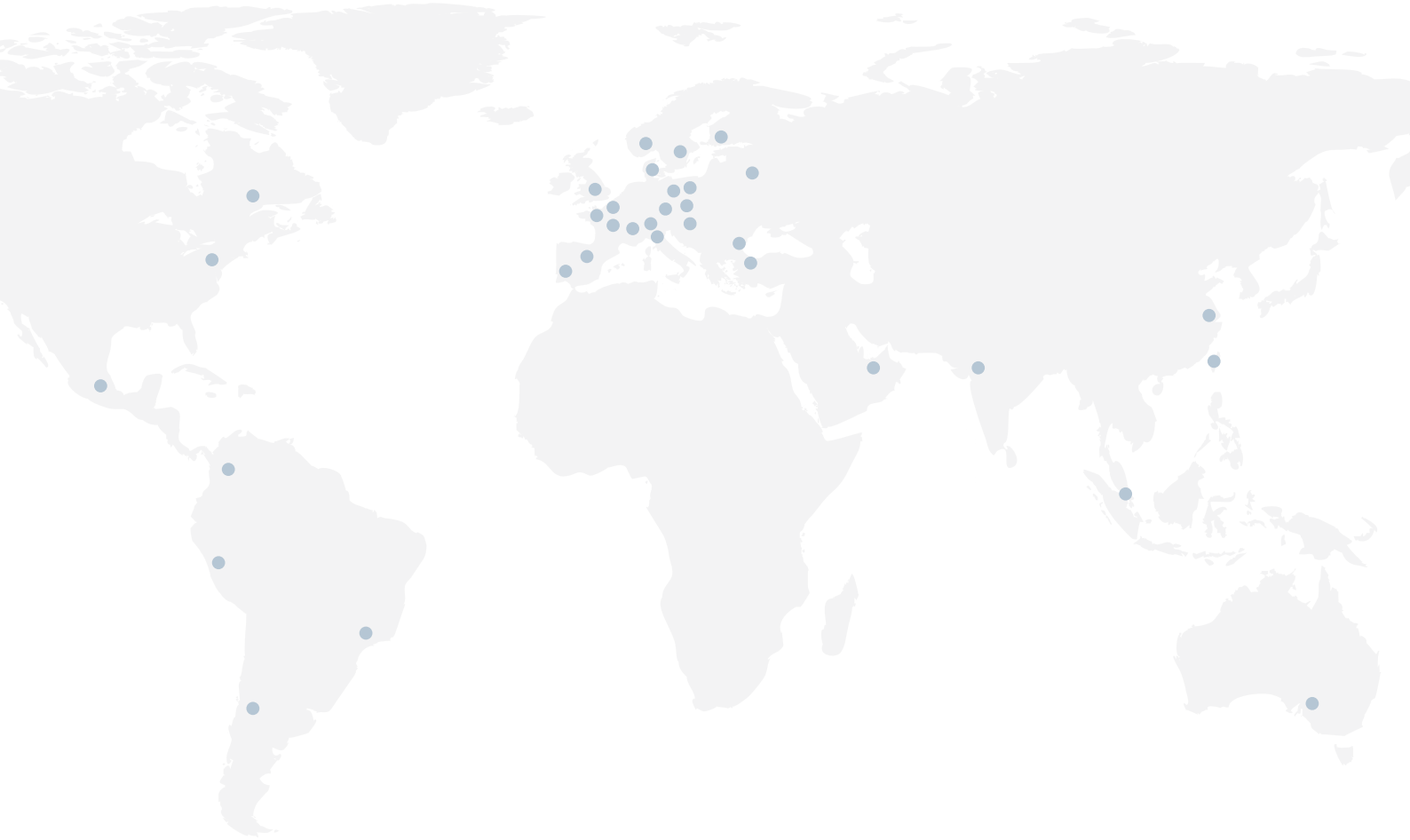
SOLVED IN PRACTICE.
30% ENERGY SAVINGS THANKS TO OPTIMISED AERATION.

The Rheda-Wiedenbrück wastewater treatment plant replaced the old positive displacement blower in its aeration system with an AERZEN Turbo Blower and a Delta Hybrid, greatly increasing efficiency as a result. The new Performance³ plant configuration yields more than 40,000 Euros in annual savings, thereby generating a rapid return on investment.

Reference: Rheda-Wiedenbrück wastewater treatment plant.
The residents of the Rheda-Wiedenbrück region (population equivalent 326,000) are connected to the wastewater treatment plant, as is Germany's largest slaughterhouse. AERZEN packages that were optimised in terms of energy consumption and precisely adapted to the power requirements were installed in the course of modernising the treatment plant. Energy savings of 30% have already been achieved, an interim result obtained with a relatively simple process control system closely linked to prevailing actual values. The installation of AERsmart enabled Performance³ to realise its full potential. Today, the integrated control system further reduces energy consumption by up to eight percent in providing the required air supply.
The Rheda-Wiedenbrück wastewater treatment plant was the first wastewater facility in Germany to utilise the Performance³ solution and the AERsmart integrated control system in process design, resulting in an annual saving of around 40,000 Euros in energy costs.

Other wastetwater treatment plant references:
- Emsbüren
- Beggen
- Essen Filderstadt
- Holzkirchen
- Wallau Biedenkopf
- Wustweiler
- Bingen
- Bomlitz
- Görlitz
- Aachen Soers
- Monsheim

and many more, in Germany and abroad.



LET'S TALK

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