

# COM•PRESS



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AERZEN blowers and compressors for maritime applications

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Stephan Brand, AERZEN Director Marketing & Director Turbo Business

Dear Readers,

Sustainability is a key word and a key topic of our time, and it is increasingly finding its way into all elements of our daily lives. This of course also applies to AERZEN products, which are used in many applications and industrial sectors. But what does “sustainable” actually mean?

Sustainability has many facets, and we take a closer look at these in this issue of ComPress.

An important component of sustainability is increasing energy efficiency, something which is firmly anchored in our innovation culture at AERZEN as a specialist in blowers, compressors and turbos. One example of this is the development of our new Delta Hybrid screw blowers, which are increasingly being used in wastewater treatment and save over 30% in energy consumption at the Grüneck wastewater treatment plant, Germany. This innovation boost is the result of close interaction and cooperation with our customers worldwide.

We can also report on interesting and successful examples and innovations in the shipping industry. These include ALS technology, which is used to reduce the frictional resistance that affects ships and thus makes a major contribution to reducing emissions, and boil-off gas recovery on LNG tankers.

We are particularly grateful and proud that AERZEN has been selected as a pioneer in the production of green hydrogen at the large electrolysis plant in Lubmin, Germany. With our newly developed special compressors we are making an active contribution to the energy transition.

Sustainability is also improved by many large and small details and measures, to which our global sales companies also make a significant contribution. We are pleased to give you a deeper insight into the many facets of this in this issue of ComPress and also in our recently published Sustainability Report.

With all this in mind, I hope you will enjoy reading this issue of ComPress and that we can shape a more sustainable and better future together.

Yours,

Stephan Brand

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AERZEN Chief Financial Officer Michael Andersen

## Michael Andersen joins **AERZEN** as Chief Financial Officer

The new AERZEN Chief Financial Officer (CFO) Michael Andersen has extensive experience in supporting German medium-sized companies in their globalisation to ensure that they remain competitive and thus relevant for their customers while guaranteeing profitable growth. This includes many M&A transactions. This path of profitable growth requires the continued improvement of the processes also in finance such as reporting, forecasting, working capital and treasury management as well as tax and legal compliance.

Michael Andersen started his career as an auditor and has a master's degree in business economics and auditing as well as a degree as a CPA. He worked almost 20 years at GEA, first as CFO for the Process Engineering business in Denmark and then as CFO for the Heat Exchanger business in Germany, which was sold to a private equity company and for which he continued as CFO. Thereafter, he worked for four years as CFO for Krones, the largest supplier of systems and machines for the beverage industry. During his time at GEA and Krones, he was responsible for several business units and strategic procurement in addition to his regular CFO tasks. In the last 3.5 years Michael Andersen worked for a start-up in Munich and later in Berlin, one of which was listed on the US stock exchange during his tenure.

Michael Andersen is glad to be back to the German mechanical engineering industry and to be able to support the further globalisation course that AERZEN has successfully pursued in recent years. ○

## Celebrating 15 years of **Aerzen Chile**

In 2009, Aerzen Chile was founded in Viña del Mar, with just 3 people who held sales, service and administration positions. Step by step the AERZEN subsidiary was growing and providing all necessary to offer top-tier services and solutions for the industry.

15 years of effort guarantee the exponential growth of this subsidiary that today has a 500 m<sup>2</sup> of field service and a total of 18 employees. It also has a presence in the north, south and center of the country with approximately 1,200 AERZEN machines in operation. "This achievement is a testament to the hard work and perseverance of this incredible team, whose relentless determination have driven our success and growth in the region," says General Manager César Marín Mahana.

The team of Aerzen Chile is very happy to celebrate the 15th anniversary of the company.



Throughout these 15 years, Aerzen Chile has consistently delivered innovative and reliable solutions, tailored to meet the unique needs of our customers. The strong focus on quality and customer satisfaction has enabled this subsidiary to build long-lasting relationships with clients and partners. ○

Ginna Vasquez (Regional Marketing Manager LATAM, Region Americas)



*Kristen Grunza  
President of Aerzen USA*

## Kristen Grunza new Company President **Aerzen USA Corp.**

Aerzen USA, based in Coatesville, Pennsylvania, announced end of April 2024 as the appointment of Kristen Grunza as the President of Aerzen USA Corp. She brings over twenty-five years of experience in the industrial sector, with a proven track record of driving growth and operational excellence and fostering customer-centric cultures. She is the first female president in AERZEN's company history.

"I am honored and thrilled to lead Aerzen USA during this transformative time in our industry," states Kristen Grunza. "We have a talented team, a portfolio of cutting-edge solutions, and a commitment to delivering unmatched value to our customers. I look forward to working closely with our team to drive innovation, expand our market presence, and continue delivering exceptional results for our clients."

Most recently, Kristen Grunza was the Vice President of Commercial Strategy for Johnson Controls and, prior to that, the Vice President of Commercial Operations and Transformation at Building Solutions North America. Prior to joining Johnson Controls in 2021, she spent two decades in various leadership roles with Xylem, Honeywell, Global Power, and General Electric. In her previous leadership roles, she was responsible for sales, engineering, marketing, commercial operations, risk, quality, and field execution. She began her career as a manufacturing engineer. Kristen Grunza earned a Bachelor of Science degree in Industrial & Systems Engineering and an MBA from the University of Florida.

Aerzen USA has offices, service, and rental centres throughout the country. The company also owns and manages members of the AERZEN group: Aerzen Rental USA LLC, Vooner FloGard LLC, Aquarius Technologies Inc., and Specialty Treatment Solutions. For more information, visit [www.aerzen.com/us](http://www.aerzen.com/us).



*Catalin Lazar,  
General Manager of  
Aerzen Romania*

## Catalin Lazar: New General Manager **Aerzen Romania**

In May 2024, Catalin Lazar took over the position of General Manager at Aerzen Romania, based in Tunari, north of Bucharest. He has an experience of twelve years at companies in the Industrial and Environmental fields of activity, among them counting large companies such as Honeywell Romania and Wabag Water Services. He already worked at Aerzen Romania from 2014 to 2018.

Most recently, Catalin Lazar was as part of the Global Estimation team at Honeywell Romania the binder between Architects and Account Managers working with all the big players in world industry – like BASF, Petronas, Qatar Energy, Saudi Aramco and Phillips 66. As part of the Proposal Department at Wabag Water Services his main tasks were maintaining internal and external relationships, make compelling budgetary proposals for company's technology and services meaning project resources estimation, order processing and negotiation, technical support for the sales process, preparation for the technical specifications, inquiries from subcontractors and suppliers, offer analysis and clarifications request. As Product Manager – Blowers and Aeration systems for Waste Water Treatment Applications at Aerzen Romania, Catalin Lazar was responsible for all waste water treatment plants projects from tender to contractual phase by offering the best energy efficiency solutions and relevant advice for operators.

Catalin Lazar has a Bachelor Degree as Environmental Engineer, with studies in Mechanics, Thermodynamics, Strength of Materials, Hydraulics and Pneumatics, Waste Management and Recycling Technologies. Being a former baseball player for the Romanian national team he brings with him the discipline, hard work and teamwork spirit: "Learned on my own skin starting from early age thru sport and later in life and work, that a solid team is one of the best assets to have and hardest to get."





# AERZEN publishes Sustainability Report 2023

Prepared in response to customer enquiries and is legal obligations

The AERZEN Group is pleased to present the Sustainability Report 2023, which is now available on the AERZEN website. The latest report provides a comprehensive overview of the sustainability activities and key statistics across our entire group of companies. The report was prepared in response to customer enquiries and is in line with our legal obligations.

**T**his year, for the first time, AERZEN has also integrated more of the activities of the subsidiaries worldwide into the report. This is an important step that will be continued in the coming years. One highlight of the report is the article on the complete conversion of the headquarters in Germany to green electricity from pure wind energy.

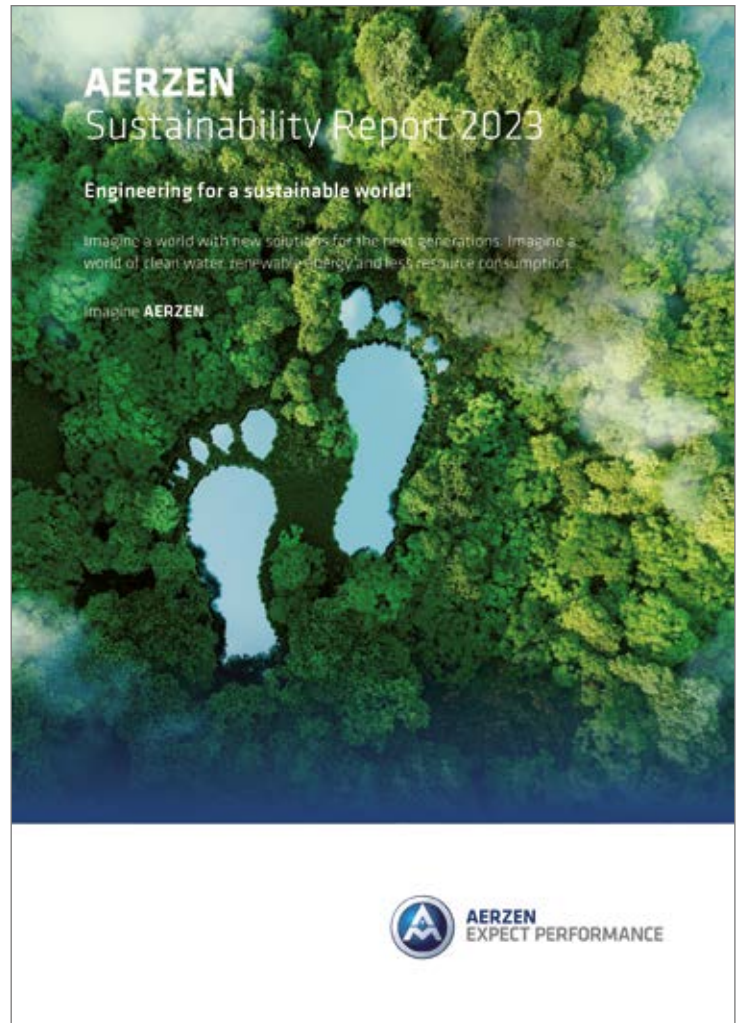
The subsidiaries have implemented impressive measures to promote sustainability as well and are thus making an important contribution to the AERZEN Group's global environmental strategy. Here are a few examples:

- In China, production costs have been lowered and CO<sub>2</sub> emissions reduced at the same time thanks to considerable material savings in the acoustic hoods.
- In India, wooden packaging is reused. A photovoltaic system supplies the site with renewable energy and an in-house wastewater treatment plant supports water treatment.
- The operation in Belgium uses solar energy, has converted its vehicle fleet to electric vehicles and has been awarded the VOKA Sustainability Charter.
- In the USA, a system records emissions data from business trips in order to reduce the CO<sub>2</sub> footprint.

These examples from the subsidiaries show how diverse the approaches to promoting sustainability are within AERZEN. Each measure contributes to achieving the global environmental goals of the AERZEN Group and continuously improving the efficiency and sustainability of the processes.

## Further measures in the coming years

The AERZEN Group is planning further measures in the coming years to achieve sustainability targets. One outstanding example is the expansion of further photo-



voltaic systems. The report presents in detail these and other measures that will continuously improve the company's sustainability.

We invite you to look for yourself at our diverse activities in the area of sustainability and to work with us towards a sustainable future. ○

Sophie Krenzek (AERZEN Quality Management, Sustainability & HSE)



The comprehensive AERZEN Sustainability Report 2023 with detailed information and key figures can be found on our website under the following link:

<https://www.aerzen.com/sustainability-report-2023>

Or simply scan the QR code

# Full speed ahead

**AERZEN** blowers and compressors for maritime applications

Process air is omnipresent in the maritime sector. It enables energy savings, protects the environment and marine life, improves safety, ensures a smooth ride and much more. This may sound like the best sailor's yarn, but it's the truth. Professionally implemented blower and compressor concepts are indispensable for a wide range of applications and processes and pay off in every respect. As a long-standing, experienced partner to the maritime industry, AERZEN understands the challenges faced on board and provides innovative solutions for a wide range of applications.





*AERZEN realises reliable, functional and compact blowers and compressors for a wide range of maritime applications.*

## **Digital information**

Further details on various website links and QR codes on page 13



**S**hipping, shipbuilding, marine technology and the offshore industry are facing major challenges. “Saving fuel, reducing CO<sub>2</sub> emissions, switching from heavy fuel oil to LNG drives and ongoing cost pressures are currently among the biggest issues confronting the maritime industry. They are the driving force behind innovation and are driving the transformation of the sector,” explains Torsten Lehmann, AERZEN Sales Office Manager for Northern and Eastern Germany: “Our blower and compressor solutions help to fulfil increasing environmental and climate protection requirements. They reduce energy consumption, thus lowering energy costs, and they improve maritime safety.”

### Heading for the future

AERZEN blowers and compressors combine the expertise and experience of more than 160 years of technological leadership and prove themselves successfully every day in the most demanding applications worldwide. For maritime applications this concentrated sector and application expertise is invaluable. “The technology on board must

first and foremost be robust, safe and corrosion resistant. With the short waiting times of a ship in the harbour or shipyard, speed and worldwide availability of spare parts are also essential,” says Torsten Lehmann. “We know what our customers want and we are well networked across miscellaneous sectors. This experience and expertise is incorporated into our solutions for the maritime industry,” he adds. The result is durable, low-maintenance packages with maximum functionality, compactness and reliability. AERZEN machines are at home on all the world's oceans and they ensure trouble-free, economical operation even in stormy times. And in the event that something should happen, an extensive network of service centres, decentralised parts warehouses and over 50 foreign companies ensures worldwide service with short reaction times.

### Safe, robust packages

In terms of variety and flexibility, AERZEN's range of solutions has always been market-leading. With its very broad and sensibly graduated product portfolio and an almost





limitless range of options and auxiliary parts, the innovation pioneer really does fulfil every process requirement. In the maritime industry, robust positive displacement blowers and screw compressors and energy efficient screw blowers are used. These machines defy the difficult conditions at sea and perform their work safely and reliably even in high waves and extreme temperatures. They provide 100% oil- and absorption material-free process air, fit into any machine room, thanks to their small footprint, and are designed to run efficiently, fault- and maintenance-free for long periods. The packages are certified by DNV GL (Det Norske Veritas (DNV) and Germanischer Lloyd (GL) have joined forces in the international classification society) and Lloyd's Register, among others, and can also be used for safety-related tasks on board.

**Always a hair's breadth of air at the bottom of the keel**

Currently, one of the most exciting applications is ALS technology (Air Lubrication Systems). Here, compressors are used to blow hundreds of thousands of micro-bubbles of air per second and metre evenly under the hull of



*For the maritime industry, AERZEN offers blowers and compressors with maximum functionality, compactness and reliability.*



*AERZEN ALS technology (Air Lubrication Systems): if process air is blown under the bottom of a ship's hull, this reduces friction between the ship's hull and the surrounding water and thus reduces fuel consumption.*

*AERZEN compressors can feed the Boil-Off Gas, which is produced on LNG tankers during transport by heating LNG, back to the ship's engine after pressure adjustment.*

a ship - for example passenger ships, container freighters or LNG tankers - in order to reduce friction between the hull and the surrounding water. According to research reports, frictional drag is responsible for 60-80% of a ship's total drag, and a significant reduction in this can lead to a sustainable reduction in greenhouse gas emissions from ships in the order of 6-10%. AERZEN is at the forefront of the ALS market as a technology driver, supplier and development partner. The proven VML and VM compressors are in particular demand, supplemented by VFDs, coolers, piping, regulators and isolating valves as well as a master control system. Together with its partners, AERZEN is developing ever more efficient, compact and sound emission-optimised systems in order to meet the demanding requirements of the Energy Efficiency Design Index (EEDI).

### Utilisation of Boil-Off Gas

Speaking of LNG (liquefied natural gas), Boil-Off Gas (BOG) is produced as a by-product during its storage and transportation. It is liquefied again in a suitable compression process and fed back into the tank as LNG. However, it can also be used as fuel and thus enables climate-friendly operation, for example of LNG tankers, cruise ships or ferries. AERZEN realises application and cost-optimised compressor concepts for the handling and processing of BOG. If the BOG is used as fuel for the ship's engine, oil-injected VMX packages are used. These robust machines are designed for reliable continuous operation and are particularly low-maintenance thanks to reduced wear parts. Oil-free operation is required when returning the reliquefied gas to the LNG tank. The first choice is therefore multi-stage, oil-free screw compressors. Bespoke solutions optimally fulfil the high safety requirements and at the same time offer maximum reliability, process safety and energy efficiency. And by the way, oil-injected compressors from the VMX series are also used to supply LNG as fuel for the ship's engines.

### Water treatment at sea

Environmental, climate and marine protection also play a central role in wastewater and drinking water treatment. In the past, wastewater was simply dumped out at sea. In the meantime, ship wastewater treatment plants have become established. And where there is a wastewater treatment plant, AERZEN technology is never far away.



*For the handling and processing of Boil-Off Gas (BOG), AERZEN offers bespoke oil-free screw compressors that ensure maximum process reliability.*

AERZEN is one of the leading international suppliers of aeration systems for aeration tanks, and the expertise of the company can be found in more than 100,000 wastewater treatment plants of all sizes worldwide. Shipping also benefits from this unique expertise. Mobile plants from AERZEN are installed on the largest passenger and cruise ships and enable reliable, efficient and sustainable wastewater treatment at sea.

### Have a safe journey at all times

AERZEN solutions also support manoeuvring, stabilising and keeping ships free of ice. Anti-heeling systems exactly tailored to the ship dynamically ensure an always smooth and stable position in the water. Using a precisely dimensioned blower, water in the ship's ballast water tanks is pushed from one side of the ship to the other via a pipe system. The plant uses air valves to control which



side the water is pushed onto, depending on the current position of the ship. These can change the air flow in less than one second. Anti-heeling systems with blowers are significantly more economical and energy-saving than those which involve pumps. Cruise ships, cargo ships, tankers or cable ships lie more calmly in moving water and remain stable during loading and unloading. If the anti-heeling plant is used in reverse, a “duck walk” occurs, a slight swaying that serves to keep icebreakers free of ice.

CO<sub>2</sub> injection is still a relatively new application. In the past, reciprocating compressors were used as standard for this purpose. However, the process-related vibrations can cause the perlite, which binds the carbon dioxide in

*Modern auxiliary systems for manoeuvring and stabilising ships use AERZEN compressors and blowers.*





the reservoirs, to settle. This makes storage and removal of the gas more difficult. High-pressure blowers (positive displacement blowers) are an alternative. These machines are dynamically balanced and therefore do not cause any vibrations.

### **Process air protects marine life**

Even on the seabed, nothing works without process air. Noise emissions are generated during the construction of foundations for offshore wind turbines. Without appropriate measures, these spread for many kilometres across the water and harm fish, marine mammals and birds. To protect marine ecosystems, so-called air curtain systems are therefore mandatory for foundation construction. Air is blown into the sea via a hose, and, using sophisticated technology, a protective column is created around the pile-driving site on the seabed by millions of small air bubbles rising upwards. These air bubbles practically create a protective wall so that the sound cannot spread from the pile-driving site across the sea. This means that marine life is not disturbed and negatively affected by the sound. As a lot of air is required to produce the millions of small air bubbles, several oil-free compressors are usually needed.

AERZEN has also installed positive displacement blowers on survey and research vessels undertaking seismic surveys of the seabed. The blowers serve as the first stage before reciprocating compressors (compressor charging). Pre-compression means that smaller reciprocating compressors can be used. The situation is similar for borehole blockages using highly compressed nitrogen. VMX compressors supplement the reciprocating compressors in the first stage.

### **AERZEN makes customers perfectly happy**

Whether process air or process gas, whether on a ship or on the seabed, whether in inland shipping, in the harbour area or on the high seas, whether passenger, freight, tanker or research vessel, there are virtually no limits to the possible applications of AERZEN positive displacement blowers, screw blowers and screw compressors.

Other fields of application include reducing the noise level of transverse thrusters and propellers on luxury ships (keyword: cavitation interruption), cooling on fishing vessels, the extraction of VOC gases on oil tankers and the pneumatic conveying of bulk materials during loading and unloading. "Thanks to our unusually wide portfolio of solutions and our flexibility in terms of modifications, AERZEN leaves nothing to be desired. Whatever the requirements, we will find the optimal solution. AERZEN makes everything possible," says Torsten Lehmann. ○

*During the "duck walk", there is a slight swaying that serves to keep ice-breakers free of ice.*





## AERZEN process air applications in the maritime industry

- Air Lubrication Systems (ALS)
- Wastewater treatment plants on ships, available in all sizes
- Utilisation of Boil-Off Gases (BOG)
- Compressors for the LNG supply as fuel for the ship's engines
- Anti-heeling systems for ship stabilisation
- Keeping icebreakers free of ice (duck walk)
- Air curtain systems for offshore sites
- Volume reduction of transverse thrusters and propellers
- Compressor charging: pre-compression for compressed air generation
- Compressor charging: borehole blocking with highly compressed nitrogen
- CO<sub>2</sub> injection
- Extraction of VOC gases (Volatile Organic Compounds)
- Pneumatics: suction and pressure conveying for loading and unloading
- Refrigeration plants



<https://www.aerzen.com/applications/maritime-industry>



<https://www.aerzen.com/services/overview>



<https://www.aerzen.com/products/positive-displacement-blowers/overview>



<https://www.aerzen.com/products/screw-compressors/overview>



<https://www.aerzen.com/products/screw-blowers>



<https://www.aerzen.com/product/oil-injected-screw-compressors-stages-vmx>



<https://www.aerzen.com/product/oil-free-multi-stage-screw-compressor-units-series-2c>



<https://www.aerzen.com/applications/water-and-waste-water-treatment>

Further  
information

# AERZEN and HH2E agree on cooperation

Production of green hydrogen in Lubmin

*AERZEN and HH2E have decided to work together at AICHEM 2024. Dr. Ina Hahndorf (HH2E AG) and Dirk Koob (CEO AERZEN Deutschland GmbH & Co. KG) sign the strategic co-operation agreement. On the right of the photo AERZEN sales engineer Christian Meyer.*



The new German green energy company HH2E is among the first companies in the country to produce hydrogen from renewable energies on a large scale. The hydrogen specialist is currently planning the construction of a large-scale electrolysis plant at the Lubmin energy site in Mecklenburg-Vorpommern and intends to start producing green hydrogen there from 2026. HH2E also relies on the technologies and expertise of AERZEN. An agreement was reached for the delivery of three VRW 536M packages for the plant on the Baltic coast. The aim is to intensify the partnership in the long-term.

As a strong partner to the process gas industry AERZEN is known for its high level of technology and solution expertise and is recognised as one of the most competent providers of technical solutions with maximum efficiency, reliability and cost-effectiveness. The hydrogen industry also relies on AERZEN's expertise and experience - as does the Hamburg-based company HH2E. AERZEN and HH2E have now agreed to work together to advance the energy transition.

#### **HH2E drives the hydrogen transition forward**

HH2E produces green hydrogen on an industrial scale using surplus electricity from wind and solar energy and plans to install production plants in Germany with a total capacity of at least 4 GW by 2030. One plant is currently under construction in Lubmin. It utilises the extensive energy infrastructure of the largest energy and industrial site in Mecklenburg-Vorpommern and is rated for an initial capacity of 100 MW by 2026. This enables it to pro-

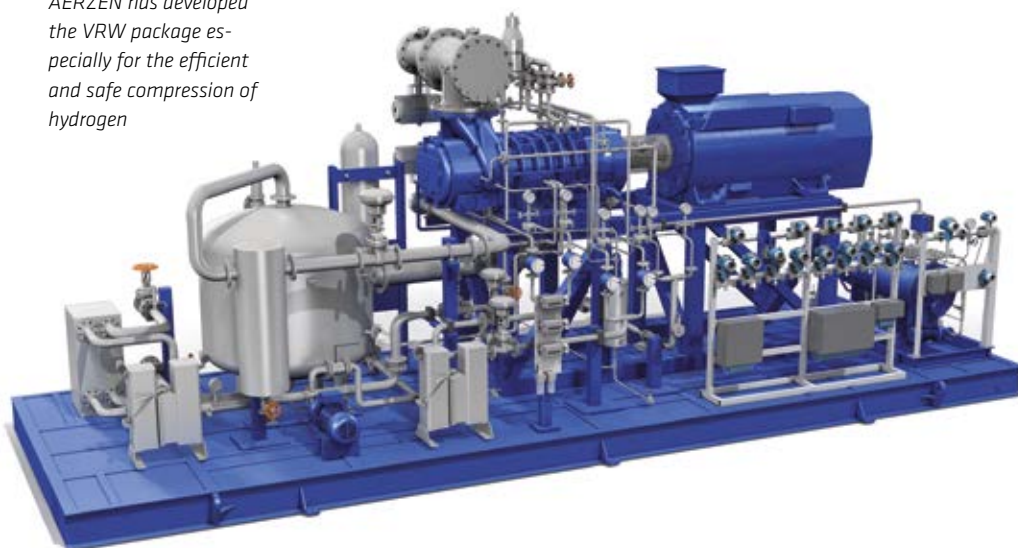


duce around 6,000 tonnes (over 200,000 MWh) of green hydrogen per year. By 2030, the capacity is to be scaled to over 1 GW, which corresponds to an annual production of more than 60,000 tonnes of green hydrogen.

**AERZEN delivers three VRW 536M for the hydrogen factory in Lubmin**

For the hydrogen factory in Lubmin HH2E and AERZEN have agreed to supply three VRW 536M packages, each with a volume flow of approx. 4,700 m<sup>3</sup>/h and a final pressure of 8.0 bar (a), for an order value in the upper seven-figure range. The AERZEN VRW 536M was specially designed for efficient and safe compression of hydrogen and combines the advantages of an oil-free compressor (no contamination of the medium) with a high compression ratio (max. 10 bar (a)) and high efficiency, even with light gases (hydrogen/helium). The explosion-proof package offers a large turndown and can therefore optimally handle the fluctuations that typically occur when using renewable energies. As a screw compressor, the VRW 536M can also handle larger volume flows of up to 6,000 Nm<sup>3</sup>/h, making it the perfect link between electrolyzers and high-pressure compressors. By pre-compressing (boosting) the large H<sub>2</sub> volume flows to higher intermediate pressures, the main compressors (reciprocating compressors) can be designed much smaller and more favourably. This enables significant cost savings.

*AERZEN has developed the VRW package especially for the efficient and safe compression of hydrogen*



*The agreement between HH2E and AERZEN was a highlight of AERZEN's trade fair appearance at Achema 2024. The group picture shows Dr. Ina Hahndorf (3rd from left) and Karsten Kinzig (4th from left) from HH2E as well as (from left) Constanze Schrom, Jan Gehrmann, Christian Meyer, Torsten Lehmann and Dirk Koob from AERZEN.*

**AERZEN and HH2E are planning a long-term cooperation**

“HH2E's projects are leading the way in green hydrogen production. We are delighted to be working with HH2E to contribute to the hydrogen transition and decarbonisation of industry. The VRW 536M enables the compression of saturated electrolysis hydrogen with unrivalled efficiency and differential pressure, making it an important building block for the hydrogen transition,” emphasises Sales Engineer Christian Meyer from AERZEN.

Karsten Kinzig, Head of Procurement at HH2E, adds: “HH2E stands for a flexible mix of complementary technologies. This makes it possible to utilise renewable energies on a large scale. Our aim is to offer hydrogen at fair prices. Innovative technology partners such as AERZEN support us in this endeavour. We look forward to building a long-term cooperation with AERZEN.”

**Additional information**



<https://www.aerzen.com/applications/process-gas-technology>



<https://www.aerzen.com/product/water-injected-screw-compressor-series-vrw>



<https://hh2e.de/en/>



<https://www.hh2e.de/en/projekte/lubmin/>



# Energy pioneer with a role model character

With the new Delta Hybrid from **AERZEN**, the Grüneck wastewater treatment plant reduces the energy demand in the aeration by up to 77,000 kWh per year

The new AERZEN Delta Hybrid with direct drive, IE5 synchronous reluctance permanent magnet motor and integrated VFD enables energy savings of up to 37% compared to conventional blowers, making it one of the undisputed leaders on the market. The Grüneck wastewater treatment plant near Munich was able to test the innovative screw blower even before its official market launch at the IFAT 2024 in Munich - and is delighted with it.





With the new Delta Hybrid D50S from AERZEN (center), the Grüneck wastewater treatment plant saves up to 77,000 kWh per year.



**W**hen it comes to advanced technologies for the optimisation of wastewater treatment and reducing the consumption of energy and resources, the Grüneck wastewater treatment plant is always at the forefront. Since its foundation in 1966, the plant near Munich Airport has been continuously expanded and modernised and now ensures wastewater cleaning at the highest level for 160,000 PE (population equivalents). In 2023, the wastewater treatment plant was able to cover its total energy demand through its



All wastewater from the approximately 100 square kilometre catchment area of the Unterschleißheim, Eching and Neufahrn wastewater association is treated at the Grüneck wastewater treatment plant, currently rated for 160,000 PE.

*The aeration tank II is the scene of the current energy optimisation project. Biological cleaning offers the greatest lever for the optimisation of energy efficiency.*

own generation for the first time. However, the Bavarians are by no means resting on their laurels, but already have their sights set on the next goal - and that is 150% energy self-sufficiency. With the new directly driven Delta Hybrid from AERZEN, things are moving forward in a short time. The innovative screw blower impresses with the best energy efficiency and the smallest footprint as well as reduced maintenance requirements and is a further step towards even greater economy and sustainability.

#### **Wastewater cleaning at the highest level**

“We want to save energy. Modern technology that helps us to do this is always welcome. That's why we were all ears when AERZEN presented the new Delta Hybrid to us and showed us the potential savings on our plant,” explains Jakob Rottmeir, Managing Director of the Unterschleißheim, Eching and Neufahrn Wastewater Association: “We have been using AERZEN packages in the aeration and sand trap for a lengthy period of time and are very satisfied with them. The machines are reliable, they support us in the optimisation of our energy demand and the maintenance requirements are low.”

At the Grüneck wastewater treatment plant, all wastewater from the approximately 100 square kilometre catchment area of the Wastewater Association is collected and treated in a combined process, purified and discharged into the Isar as clean water with EU bathing water quality. The centrepiece is the biological purification

### **Digital info**

Further information on various website links and QR codes on page 20



## Water and wastewater treatment

phase. This consists of two ranges - aeration tank I and aeration tank II.

### AERZEN technology in both aeration tanks

Aeration tank I is only around three metres deep and is currently supplied with oxygen by three AERZEN Delta Hybrid D75L (2x 75 kW, 1x 55 kW). Originally, three turbo-compressors from a competitor were installed. However, efficiency and spare part problems led to the decision to switch to screw blowers from AERZEN around ten years ago. These were significantly better positioned in terms of energy, technology and economy. As the volume of wastewater falls very differently in the summer and winter months, a large turndown is important. Finally, a volume flow range of 750 m<sup>3</sup>/h to 9,300 m<sup>3</sup>/h must be covered in aeration tank I. In December 2023, the aeration

system was brought up to date and new membrane tube aerators that could be adapted to the existing pipe network in the tank were installed. These work so efficiently that in future significantly less volume flow will be required for aeration of the tank.

Aeration tank II was put into service in 2012 as part of a capacity increase of 40,000 PE and consists of two parallel lines, each of which is divided into four individual cascade tanks. Cascades 1 to 3 are deni-cascades and are only recirculated with agitators in normal operation. They are used for denitrification, i.e. the removal of nitrogen from the wastewater. The fourth large cascade is permanently aerated with compressed air. Its task is to break down the organic pollution loads in the wastewater and to nitrify the nitrogen nutrient so that it can then be denitrified and eliminated in the preceding denitrification cascades.

*The Delta Hybrid D50S is equipped with a direct drive by means of gear wheels, an IE5 synchronous reluctance permanent magnet motor and an integrated VFD.*



*Stephan Seedorff, Head of Technical Development at AERZEN (I.), and Jakob-Rottmeir, Managing Director of the Unterschleißheim, Eching and Neufahrn Wastewater Association during commissioning of the new Delta Hybrid D50S*

### From redundancy package to base load machine

The aeration tank II is the scene of the current energy optimisation. In 2011, five AERZEN Delta Blowers type GM25S with a performance of 45 kW each were installed there - two per line plus a redundancy package in the centre, which has access to both lines. This quintet has now been reshuffled. "The redundancy package has been operating as a base load machine in winter for several years now. In the summer peak load phases, the other four blowers take over," says Jakob Rottmeir. "We asked ourselves whether this process could be standardised so that one machine in the middle could supply both lines in summer and winter." The new Delta Hybrid D50S from AERZEN makes this possible. Even before the official market launch, the innovative screw blower was installed at the Grüneck wastewater treatment plant. It replaces

the positive displacement blower in the centre and covers the base load from now on. Two newly installed ring piston valves regulate the needs-based operation of the oxygen content of the two lines of the tank. The four Delta Blowers to the left and right of the two lines have since served as redundancy, stepping in during high load operation and providing support at higher loads.

### Delta Hybrid D50S: an efficient plug & play solution for biological aeration

The Delta Hybrid D50S has a direct drive using gear wheels, an IE5 synchronous reluctance permanent magnet motor and an integrated VFD from Danfoss and enables energy savings of up to 37% compared to conventional blowers. This is unique on the market and supports applications in a targeted manner to greater resource and cost efficiency. The new screw blowers reliably provide 100% oil-free process air, operate in an extended turn-down of up to 1:5 and offer high efficiency even at partial load thanks to the synchronous reluctance permanent magnet motors. They are ready for immediate use on delivery (plug & play) and require only a minimum of installation space. The space-saving side-by-side installation and the excellent volume flow per square metre value result in smaller machine rooms and thus lower building investments. Massive capacity increases can thus be realised in the smallest of spaces.

### Ready for the digital future of wastewater management

The robust design ensures unrivalled reliability. Even under the most difficult environmental conditions, the directly driven Delta Hybrids ensure safe operation. An optional acoustic hood for outdoor installation allows the machines to be used even under direct weather influences. The AERtronic control system for efficient regulation and monitoring of the package is already integrated and makes the Delta Hybrid D50S digitally ready. All data can be transmitted to the master control system and accessed via browser, tablet or mobile phone. The result is maximum machine availability, reliability and efficiency.

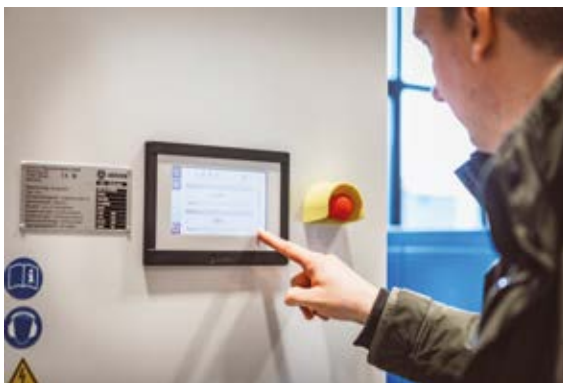
"The new Delta Hybrid uniquely combines megatrends such as energy efficiency and digitalisation with the core requirements of wastewater treatment plant technology - durability, reliability, compactness and user-friendliness - and is therefore an ideal solution for the energy optimisation of biological aeration," says Markus Leidinger, International Wastewater Manager at AERZEN, summarising the advantages.

### Energy savings of up to 77,000 kWh per year

For the Grüneck wastewater treatment plant, it was above all the exceptional energy efficiency of the new



*The AERtronic control system for efficient regulation and monitoring of the package is already integrated and makes the Delta Hybrid D50S digitally ready.*





## Water and wastewater treatment



All processes at the Grüneck wastewater treatment plant are largely digitalised.

Delta Hybrid D50S which was the deciding factor. And practical experience indicates that the blower specialists at AERZEN have not promised too much. Thanks to the switch to the innovative screw blower, the Grüneck wastewater treatment plant can reduce its annual energy consumption by up to 77,000 kWh. That is a saving of up to 31%.

The low maintenance requirements and user-friendly handling are also impressive. Operation and maintenance are performed exclusively from the front and rear. The oil

change and maintenance intervals are longer than average, which has a positive effect on service costs. The drive components are even completely maintenance free. The machines are already filled with oil on delivery and can be easily transported by pallet truck, fork lift truck or crane.

“We are completely satisfied with the new Delta Hybrid. The machines work efficiently and bring us significant cost benefits, while our service technicians are delighted with the simple and uncomplicated maintenance,” Jakob Rottmeir adds: “The change was definitely the correct decision. Thanks to the AERZEN team for the good advice and support.”



### AERZEN Delta Hybrid with direct drive: best in its performance class

By the way: the Grüneck wastewater treatment plant is one of twelve wastewater treatment plants worldwide to put the new Delta Hybrid through its paces in advance. Availability was 100% during the total test phase. As different as the process technology and operating conditions are, they all agree on one thing: no other package in this performance class on the market achieves such high energy savings as the AERZEN Delta Hybrid with direct drive. “The future-oriented design sets new scales and enables the energy-intensive water and wastewater industry to achieve considerable energy and CO<sub>2</sub> savings and thus significant cost reductions,” summarises Stephan Seedorff, Head of Technical Development at AERZEN.



<https://www.aerzen.com/applications/water-and-waste-water-treatment>



<https://www.abwasserzv.de/abwasser/>



<https://www.linkedin.com/company/aerzen-worldwide/>



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Instagram: @abwasserzweckverband

Additional  
information



The Aerzen China team is delighted with the market launch of the GMD13.f7 product.

# Milestone of Aerzen China localisation

## Delivery of the first special blowers with magnetic coupling to the BASF Zhanjiang Network Site Project

On May 15th, 2024, the Aerzen China factory held a celebration ceremony for the launch of the GMD13.f7 product. This occasion represents a significant milestone in Aerzen China's efforts towards localising production of special blowers series GMD with magnetic coupling for the first time. The recipient is the BASF Zhanjiang Network Site Project.

**T**he project is a gas application within the chemical industry, with Worley as the engineering company and BASF Integrated Site (Guangdong) Co., Ltd. as the owner. Aerzen China provided two machines of the GMD13.f7 for this project, which are used to transmit TF off-gas containing iso-butyl aldehyde, n-butyl aldehyde, n-butanol, 2-ethylhexanol, nitrogen, etc., which is flammable, toxic and erosive. Given the seaside location of the project, the products needed to have a high anti-corrosion capability, achieving a rating for the atmospheric corrosion grade CX.

Due to the flammable, explosive, and toxic nature of the conveying media, it was crucial that the entire machine to be absolutely leak-proof. To meet this requirement, Aerzen China implemented a nitrogen sealing

design to ensure oil-free operation for the customer. Additionally, AERZEN's unique magnetic coupling scheme transformed the traditional dynamic seal into a static seal, eliminating the long-term wear issues associated with conventional mechanical seals. This design is reliable, effective, and more cost-effective than traditional solutions. The device also features a tilted design to ensure easy and fast Plug and Play installation.

Before shipment, the two machines of GMD13.f7 underwent mechanical operation testing, nitrogen density testing, vibration testing, and noise testing, all of which were successfully passed in the presence of BASF and Worley representatives.

Lily Jiang, Dawn Lim (Aerzen Asia)



The GMD series from AERZEN is the universal gas-tight booster solution for the low pressure range. Scan the QR code, to find out more about the GMD series and process gas solutions from AERZEN.





# Aerzen México establishes a new local production centre

Another milestone in the company's history

In May 2024, Aerzen México S.A. de C.V. opened a new facility in Rayón. Reason enough to take a look back on the history of the AERZEN subsidiary.

**A**erzen México began its operations in 2002 to address the growing demand of customers in Mexico and Central America. The company started with a single person in charge and its team has since grown to over 50 employees. As the subsidiary expanded, Aerzen México established its first branch in Monterrey to serve the northeastern region of Mexico. In 2021, the Regional Production Centre for the Americas (RPCA) was in-

augurated. The Aerzen Turbo Competence Centre LATAM was implemented in 2022 as well as the Guadalajara office and service centre.

Now in 2024, Aerzen México has a new home to further expand its operations, service and presence, in the town of Rayón, State of Mexico, where the Aerzen Rental division has also been added. Customers, suppliers, AERZEN's top management, colleagues from the Amer-





*Impressions from the inauguration of the new Aerzen México facility in Rayón. The celebration was attended by customers, suppliers, AERZEN's top management, colleagues from the Americas, friends and representatives of local authorities.*



icas region, friends and local authorities attended the inauguration of the new production facility in May.

Aerzen México recognises the importance of establishing a local production centre to better serve the customers in the region and enhance the operational capabilities. RPCA manufactures and assembles standard AERZEN products adapted to the needs of regional customers.

Establishing of a local production centre in the Americas brings several benefits, including increased availability of products, optimised material flows, and reduced CO<sub>2</sub> footprint. It allows for the customisation of equipment to meet the specific needs of the region. The production centre also ensures short delivery times and faster service while adhering to AERZEN high-quality standards.

#### **First-class location**

The location in Rayón offers several advantages for the AERZEN operations. Situated in a strategic area, it is well-connected to key highways and industrial zones, ensuring easy access to the target customer base. Being close to Mexico City, Rayón benefits from proximity to a potentially large and diverse market. Mexico City and its metropolitan area are important economic centres in Mexico, offering opportunities for growth and expansion in various sectors. "The continuous growth of Aerzen México fills us with excitement, and this new top of the line production will enable us to meet regional demand, enhance operational efficiency and contribute to the environment for years to come," says Gabriel Ventosa, Director Aerzen México S.A. de C.V.

With over 20 years of experience, Aerzen México has successfully supplied energy-efficient and resource-saving products to various application markets worldwide, with commercial agreements in over 40 countries and regions.

"We supply the sales region Mexico and Central America with machines for many applications in a wide range of industries, including the industrial wastewater sector. We also hold a significant market share in the installation of turbo blowers in municipal wastewater treatment plants," emphasises Gabriel Ventosa.

#### **Conscious interaction with the environment**

One of the key aspects of Aerzen México is the topic sustainability and environmental protection through the products, the daily operations and now the new building. It collects rainwater and by using adsorption wells we return it to the ground and replenish the water mantle. "Regarding our products, the advanced features for our blowers and compressors and including integrated solutions like design and supply of automates process control solutions that save energy and resources, resulting in economic and environmental contribution for our customers," underlines Gabriel Ventosa. The range also includes sophisticated solution concepts for aeration systems, such as Performance<sup>3</sup> (energy-efficient combination of machine technologies, consisting of positive displacement blower, screw blower and turbo blower). "The aftermarket and customer support is very important for our customers, and we offer overhauling of old machinery all the time. The customer issues are our issues," says the Director of the company and adds: "Aerzen México has several plans and prospects for the future, including the expansion of our rental and turbo services".



# Say goodbye to downtime

**AERZEN** service contracts ensure high availability

The best service is the one you don't need. But even the most powerful technology is exposed to natural wear and tear. AERZEN therefore offers a broad portfolio of services for every phase in the life of its packages - from maintenance work, inspections and servicing, to repairs. AERZEN services increase availability and assure investments, as well as enhancing productivity and providing a decisive competitive edge. And this all happens on site at our customer's premises worldwide.

*AERZEN offers a broad portfolio of on-site services for every phase of a machine's life cycle.*

**N**o need. Too expensive. Done in-house" - AERZEN service colleagues often hear such comments when it comes to concluding a maintenance contract. Not having a maintenance contract in place may go well for a while, but it always pays off to have one in case

there is an emergency - because emergencies can cost a lot of money. Missing or improperly performed maintenance can lead to premature wear, impaired functionality and longer downtimes. If production has to be stopped due to unplanned repairs, costs can quickly mount up.





*AERZEN service technicians have completed safety training courses which meet the highest international standards and they are certified accordingly for countless fields of application.*

Against this background, costs for inspection and maintenance are quickly amortised. “We therefore always recommend concluding an AERZEN service contract. Our highly trained technicians have the necessary expertise, and years of experience, and specialise in keeping machines fit for the tough day-to-day business,” emphasises Andreas Kleine, Customer Consultant at AERZEN Germany, adding: “Once customers have used our services, they usually stick with them. An AERZEN service contract offers planning security, provides cost control and transparency, increases operational reliability and maximises plant availability. We know from our customers that downtimes are close to zero. Hardly anyone wants to do without the benefits that maintenance contracts provide.”

#### **Even the best technology is exposed to wear and tear**

But why do AERZEN customers actually need a maintenance contract? After all, the long service life and reliability of the packages is well known worldwide. They often run flawlessly for decades. Even the most extreme conditions cannot harm the robust design, and countless

AERZEN vintage machines in operation worldwide bear testament to their outstanding quality and longevity. “Even the best technology has its natural wear and tear though. Components such as piston rings, bearings, seals, V-belts, air filters, compression sleeves, oil filters and oil must be checked and replaced at regular intervals. If this is not done, the rotors and gears can be damaged, which results in high costs,” says Andreas Kleine, and he adds: “Efficient and fail-safe operation can only be ensured through regular, professional checks of the operating parameters, the performance data, taking into account the operating hours as well as the gap dimensions.”

#### **A high-quality service partner is the be-all and end-all**

No question about it: service makes the difference. At all levels - be it functionality, performance, service life, operational reliability, energy consumption or cost. The blowers, compressors and turbos are often used in critical infrastructure such as energy, food and water treatment and are an indispensable part of an overall system that must be maintained and kept in operation under all circumstances. The primary objective is to avoid unplanned downtime. Special attention is therefore paid to the selection of the service partner. “Anyone who decides in favour of an external company must know that they don't know our machines anywhere near as well as we do. This can lead to a loss of performance and efficiency. External providers also generally don't offer as comprehensive a range of services as we do,” notes Andreas Kleine.

#### **Excellent service and performance**

What makes AERZEN service so special? More than 160 years of experience, 200 very well trained service technicians, genuine OEM expertise, a large network of service centres and decentralised parts warehouses around the



*Only original parts provide optimum compatibility and enable full functionality for smooth operation and a long machine service life.*



## AERZEN know how

globe and a broad range of services that includes machine diagnostics, bearing checks, clearance measurement, vibration monitoring and acoustic optimisation in addition to oil and filter changes. It goes without saying that automatic reminders are sent for maintenance and inspection dates. Customers can concentrate fully on their core tasks and do not have to worry about the maintenance of their blowers and compressors.

As both manufacturer and service partner, AERZEN is also able to repair its machines directly on site at the customer's premises. This means that the customer always knows exactly which parts have been replaced and for what reason. The packages are also ready for use again more quickly. AERZEN also offers an on-site service for drilling platforms and other offshore facilities. The specialists deployed there are specially trained and have completed the basic course on safety on the high seas as well as HUET (helicopter underwater escape training).

### **OEM quality is the best basis for perfect machine availability**

Always bear this in mind: only spare parts which come from an Original Equipment Manufacturer (OEM) ensure the highest quality and reliable operation. Despite designations being standardised, design differences exist which can drastically reduce service life in extreme cases. AERZEN original spare parts are specifically designed for AERZEN compressors and blowers. They provide optimum compatibility and enable full functionality for smooth operation and a long machine service life. Decentralised spare parts storage and supply, and reliable

logistics, ensure rapid availability. Bespoke service kits with exactly the parts required for maintenance and repair offer optimum support in spare parts management. Long waiting times and unnecessary downtimes can thus be avoided. When time is of the essence, AERZEN can deliver stock items within 24 hours, even for older machine models.

### **Runs like clockwork**

Modern AERZEN high-performance oils, which are optimised for the machines and have been tested over many millions of operating hours, ensure correct lubrication. High temperature and oxidation stability, proven viscosity/temperature behaviour and excellent cold flow behaviour not only ensure optimum running performance, but also extend the service life of the blowers and compressors. A balanced combination of additives also offers perfect protection against corrosion and ageing.

### **Data-supported maintenance and servicing concepts**

The broad portfolio of AERZEN services is supplemented by cloud-based solutions that enable condition-based maintenance and servicing. The IIoT platform AERprogress uses existing machine and sensor data from the system to analyse a wide range of parameters such as failure probabilities, operating states, trends and optimisation options. Costly sensor technology on the process air packages can be dispensed with. AERprogress is scalable and available for different application scenarios such as energy efficiency optimisation, live monitoring or predictive maintenance.



*Decentralised parts warehouses around the globe ensure high availability with fast response times.*



*Aerzen Rental offers flexible and reliable rental solutions.*

**Aerzen Rental: flexible and reliable rental solutions**

Is maintenance or repair work due? Or do you need a temporary solution in an emergency? If so, Aerzen Rental can help. Aerzen Rental offers complete solutions for short and medium-term rentals. All machines are ready for immediate use thanks to the plug-and-play concept, and an extensive portfolio of accessories is also available, consisting of power distributors, cables, pipework, coolers, dryers, condensate separators and much more. Upon request, a complete rental system can be handed over on a turnkey basis - 24 hours a day, 7 days a week, 365 days a year.

**All-round carefree service for blowers, compressors and turbos**

Since 2006, the number of AERZEN service contracts has increased tenfold. Factors such as satisfaction and trust naturally play a central role here. In addition, customer issues such as staff shortages and downsizing, centralisation of areas of responsibility and changing service requirements are leading to growing demand. Whether partial or full maintenance, all service packages offer flexible contract terms and leave room for individual agreements. "Our service teams work where our machines are. Anywhere in the world - onshore and offshore. It goes without saying that they also assess the machines in terms of technical progress and cost-effectiveness. Our customers therefore not only enjoy the reassuring feeling that their machines are always in optimum maintenance condition, but they also stay informed about important technical innovations and can react in good time when an innovation becomes technically and economically useful," emphasises Andreas Kleine. ○

AERZEN service contracts – range of services

- Commissioning
- Inspection and maintenance
- Repair (also of third-party products)
- Retrofit
- Machine diagnostics
- Acoustic optimisations
- Use of OEM spare parts
- Bespoke service kits
- On-site service (also offshore)
- Pro-active, predictable services
- Replacement and rental machines
- Cloud based solutions for predictive maintenance
- Flexible service contracts

Further information



<https://www.aerzen.com/services/overview>



<https://www.aerzen.com/services/field-service/field-service-overview>



<https://www.aerzen.com/services/field-service/service-contracts>



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# Efficient by Nature Sustainable by Design It's in our DNA.

The innovative AERZEN  
Roots, Screw and Turbo Blowers



Up to 55% energy saving potential in the biological wastewater treatment process



Minimising CO<sub>2</sub> footprint by 65% to achieve your common climate goals



Optimising blower technology mix for a sustainable aeration process



## LET'S TALK

about efficiency and sustainability  
[www.aerzen.com/wastewater](http://www.aerzen.com/wastewater)



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EXPECT PERFORMANCE