CUSTOMER JOURNAL · EDITION 1·2022

AERZEN COM·PRESS

Dear Readers,

Lavinia Schäfer, Marketing/Head of Communication & Branding

we would like to sincerely thank you for your trust and loyalty over the past months! Despite the ongoing pandemic and the consequences of the hacker attack, we can look back on an extremely successful 2021, mainly due to your continued support - and in 2022 we intend to give full speed for you again with new, resource-efficient and digital products and services. You will find some examples in this edition, where we inform you about new Delta Hybrid sizes, the expansion of our turbo programme as well as the rental offer, and the Internet of Things platform AERprogress for the intelligent generation of process air.

In this COM•PRESS, we will also report from the field on award-winning, modern and trend-setting wastewater treatment plants using customised AERZEN solutions.

This year, we are especially looking forward to the renewed opportunities for personal contacts and discussions with you at the numerous international trade fairs at which the AERZEN Group is represented, as you can read on page 4.

LET'S TALK!

We look forward to seeing you again and wish you an exciting read!

Sincerely
Yours

© Siemens AG

The Upper Engadine WWTP is one of the most modern and innovative wastewater treatment plants in Europe.

The most modern wastewater treatment plant in Europe

Upper Engadine WWTP (Switzerland): maximum efficiency in activation thanks to AERZEN rotary lobe compressors

The digital twin doesn't yet play a significant role in the wastewater sector, but the potential in terms of process optimisation is enormous. As the most advanced wastewater treatment plant in Europe, the new Upper Engadine WWTP in Switzerland has dared to take a step into the future and show how water protection and cost efficiency can be optimally harmonised with state-of-the-art technologies and a sustainable energy concept. On board: highly efficient rotary lobe compressors resp. screw blowers from AERZEN.

The wastewater treatment plant of the future is energy-efficient, resource-saving, compact and economical. What this looks like in practice is on show in Switzerland - more precisely at the high valley of Oberengadin (Canton Graubünden). In the small village of S-chanf on the upper reaches of the River Inn - a good 20 km. north-east of St. Moritz - one of the most modern and innovative wastewater treatment plants in Europe went into operation in July 2021. The Upper Engadine WWTP was planned and realised according to the latest state of the art - keyword digital twin - and impressively proves that ecology and economy are not opposites. "While sustainability is a key focus, economic efficiency is just as important," is how Plant Manager Godi Blaser sums it up. The result is a quantum leap for the region and a blueprint for wastewater treatment in the future.

Combination of three wastewater treatment plants

The starting point for the new construction was insufficient nitrification in the Upper Engadine wastewater treatment plants Staz in Celerina, Sax in Bever and Furnatsch in S-chanf, which meant that the water protection requirements could no longer be met. The question was: should the three plants, which were variously built in the 1970s and 1980s, be renovated or should their capacities be combined in a new regional wastewater treatment plant for Upper Engadine? Although the investment costs of 74.6 million Euro for a new plant were higher than for an expansion of the three existing WWTPs (50,7 million Euro), the envisaged operating costs were significantly lower - 1.8 million versus 2.5 million Euro per year. Assuming 45 years of operation, this results in significant savings.

The new Upper Engadine WWTP was built on the site of the old Furnatsch WWTP and is designed for 90,000 population equivalents (PE). This makes it considerably smaller than the Staz, Sax and Furnatsch WWTPs, which have a total capacity of 114,000 PE. This was made possible by the main collection channel from Samedan to S-chanf, which was already built in 2009, a consistent separation of meteoric water (rain, melt water) from polluted wastewater, and optimised process engineering during the peak tourist season around Christ-

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AERZEN wins ENSI award for highest energy-efficiency

Berlin is always worth a trip: this also applied to AERZEN's participation in the TAUSENDWASSER trade fair on 27 and 28 October 2021 in Germany's capital. At the trade fair for water management, the ENSI award was presented for the first time, which honours special commitment to regional climate protection in the water industry. The first prize in the category "Energy-efficient product" went to Aerzener Maschinenfabrik GmbH, one of the more than 170 exhibitors.

The reason for this award is: "Aerzener Maschinenfabrik supplies more than just reliable machines in the field of blowers. Already six years ago, an application management was introduced for the areas of water technology and pneumatics. The distribution of reliable machines is supplemented by the topics energy efficiency, CO_2 reduction and energy recovery, paired with the respective possible promotion measures of the region and individually tailored to the customer. As an example, the following results were achieved for a project at TAV (Trink- und Abwasserzweckverband) Liebenwalde, which also received an award here: 47% energy increase with 42% capacity increase and 80% subsidy."

The award's namesake and brand ambassador is the turtle "ENSI". With its sustainable and energy-efficient lifestyle, it represents a central concern of e.qua, a network operating throughout Germany that focuses on the current and future challenges of the water industry, and the initiator of the award: ENERGETIC SYSTEM INTELLIGENCE (ENSI for short). According to this holistic approach, the assessment of energy efficiency does not only consider individual packages or processes, but always the entire plant system up to entire companies. The ENSI was also awarded at TAUSENDWASSER in the categories "Energy Efficiency and Climate Protection in Municipal Companies or a Municipal Project" (here the winner was TAV Liebenwalde) and "Energy Efficient Project".

Markus Leidinger (Application Manager Wastewater AERZEN, third from left) and the entire trade fair team of Aerzener Maschinenfabrik are happy about the ENSI award.

Questions, Suggestions, Ideas?

We are looking forward to all your queries, comments and suggestions on our customer journal, and we are at your disposal for further information on AERZEN products and services. Give us a visit on our website:

www.aerzen.com/news

The entire process management of the Upper Engadine WWTP is highly automated. Thanks to the digital twin, operating scenarios can be simulated in advance.

mas and New Year. The plant has a modular structure. This means that the Upper Engadine WWTP is also optimally equipped to cope with wide seasonal fluctuations: while peak loads of up to 110,000 PE occur in the peak season, the pollution load in the low season corresponds to just 15,000 PE.

Life cycle costs as a determining factor

When choosing the technologies, solutions and materials to be used, the focus was primarily on life-cycle costs. This means that it was not only the procurement costs that counted, but also the operating costs, i.e. expenses for electricity, maintenance, personnel, etc. For the SBR biology (SBR = Sequencing Batch Reactor), the heart of the plant, this meant that energy efficiency and availability in service were largely the decisive factors. Particular attention was paid to the aeration system, as this can consume between 60 and 80 per cent of the total energy required for wastewater treatment.

In the Upper Engadine WWTP, AERZEN rotary lobe compressors of the type Delta Hybrid D 52S with a maximum intake volume of 40.9 m^3/min, a pressure difference of 650 mbar and a volume flow control range of more than 1:4 ensure optimum oxygen supply to the five SBR reactors - one Delta Hybrid per basin (basin volume 2,700 m^3). An additional compressor would normally be required as redundancy. However, thanks to the high reliability of the AERZEN packages, and the fact that all SBR reactors are rarely in operation at the same time due to seasonal fluctuations, the Upper Engadine wastewater treatment plant deliberately decided against this.

Condition monitoring of the blowers

The Upper Engadine WWTP wanted to cover all processes with the same type of converter on site and commissioned an extra partner for this purpose. Therefore, packages without frequency converters were required. No problem for AERZEN. The blower and compressor specialist offers a great deal of flexibility here and can supply its equipment with integrated, separate, or, as in the present application, without a converter. The frequency converters also monitor the condition of the blowers. Speed or frequency allow conclusions to be drawn about the current volume flow and thus the actual load. In the future, predictive maintenance will also be targeted, because as the largest energy consumers, the blowers are particularly predestined for needs-based maintenance. "I am glad that we are working with AERZEN blower technology. With AERZEN, we have a partner who not only supplies reliable and efficient technology with minimal maintenance, but also offers excellent service. Whenever there is something wrong, we can always rely on AERZEN to be there within a very short time," says Godi Blaser enthusiastically. In addition, two robust positive displacement blowers of the Delta Blower type are being used in the grit chamber..

A special feature is the installation altitude of 1,650 metres above sea level. Due to the lower air pressure and the resulting lower air density, a higher volume flow is needed to get enough oxygen molecules into the aeration. Also, the pressure ratio is higher (in this case it can vary between 1.5 and 2) and a motor derating has to be taken into account. As a result, more powerful packages are needed at altitude than at sea level. Against this background, the issue of energy efficiency becomes even more relevant. The highly efficient Delta Hybrid D 52S are exactly the right choice, because thanks to their technological superiority they enable significant energy savings of up to 30 percent compared to classic blower technology.

The entire process management of the Upper Engadine WWTP is highly automated via a powerful control system and enables the operating staff to carry out the necessary monitoring, data evaluation and process optimisation. The control of the SBR reactors is implemented dynamically. The SBR process is a variant of the activated sludge process. In contrast to the conventional method, in which all purification steps take place one after the other in different basins, the SBR process combines biological purification and secondary sedimentation in one reactor. This results in a particularly high degree of flexibility.

Pioneer in digital twin

"It is important to us that the systems run reliably and that we have no failures. Due to the dynamic control, the system is so complex in itself that you can't necessarily see the effects of a measure immediately. That's why we rely on the digital twin. This gives us the possibility to simulate operating scenarios in advance," Godi Blaser explains. In the simulation model, strategies and variants can be examined and forecasts and options for action can be shown. The results then flow into the dynamic control system.

State-of-the-art technology combined with a sustainable energy concept: history has been made in the Upper Engadine. The digital twin is a novelty in Europe's wastewater management - and already so successful that imitators will certainly not be long in coming. Godi Blaser emphasises: "The aim of the digital twin is not to take over control. The digital twin is a tool and if you see it as such, it is very valuable."

As soon as all processes are running smoothly, an annual electricity demand of 1.4 GWh is estimated for the Upper Engadine WWTP, of which 1.2 GWh will be generated from pure WWTP operation. The goal: 80% energy self-sufficiency. Energy-efficient, reliable and low-maintenance technology such as the AERZEN packages make a significant contribution to this. By the way, if you add in external processes such as the solar plant or the biogas production from the whey delivered to the plant, it even goes into overdrive.

AERZEN Delta Hybrid D 52S rotary lobe compressors ensure optimum oxygen supply to the five SBR reactors.

The Upper Engadine WWTP combines state-of-the-art technology with a sustainable energy concept.

AERZEN expands successful screw blower series

New Delta Hybrid sizes: Maximum energy efficiency, minimum Total Cost of Ownership

Delta Hybrid is among the most innovative solutions in compressor technology – and by far among the most efficient assemblies in its class. Now AERZEN has taken its globally successful screw blowers to the next technology level. The new types impress with smart features, further improved functionality and enormous energy savings of up to 30% compared to a conventional positive displacement blower.

Energy savings of up to 30% are possible with the new AERZEN Delta Hybrid sizes compared to a conventional blower.

AERZEN rotary lobe compressors, also known as screw blowers, combine the advantages of blower and compressor technology in a single system and offer a wide range of performance for the most different process requirements. The assemblies are primarily designed for oil-free conveying of air and cover an extremely wide range of key industrial applications – from pneumatic conveying and homogenisation to wastewater treatment. With the expansion of its portfolio, AERZEN is taking innovative future technology to the next level. The new additions inspire with exceptional energy efficiency, a simplified service and maintenance concept as well as reduced dimensions or smaller footprint. They, thus, contribute significantly to reducing the Total Cost of Ownership (TCO).

Plus in efficiency, durability and user-friendliness

Thanks to an innovative compressor stage with new high-efficiency screw profiles, internal flow optimisation, coupled with motors of energy efficiency class IE4 as standard, optimised guiding of cooling and exhaust air as well as a self-tensioning belt drive with an efficiency of over 98% in conjunction with a pinpoint design, outstanding energy savings of up to 30% are achieved compared with a conventional blower. The extended control range of 1:5 is also trend-setting.

The patented bearing enables a service life of 70,000 hours and more. An effective sealing concept for the driving shaft and the conveying chamber minimises natural wear and also guarantees oil-free operation in accordance with ISO 8573-1 class0. The patented, reactive silencer without absorption material successfully prevents contamination of process air or of the downstream process system. This is a decisive factor for sustainable, safe and long-lasting operation in food industry or wastewater treatment.

The smart oil system, which manages with a very low oil quantity and doubled change intervals of 16,000 operating hours, has a positive effect on the longevity and the maintenance effort. Another plus: thanks to the selected driving concept, subsequent volume flow adjustments can be implemented at any time. The compact design enables a space-saving side-by-side installation (no distance between the machines required), resulting in a smaller machine room and, thus, lower investment in the building.

New benchmark for blower technology

Incredibly efficient and unrivalled reliability in operation: the four new assembly sizes cover volume flows from 13 to 30 m^3/h and driving power from 7.5 to 55 kW. With regard to the composite concept Performance^3 consisting of Delta Hybrid, Delta Blower and Aerzen Turbo, the new screw blowers also offer further efficient alternatives for an optimal machine design. With its new Delta Hybrids, AERZEN defines a new benchmark in blower and compressor technology and once again demonstrates its high innovative strength and technological superiority. ○

AERZEN extends its portfolio of turbo machines

The new duo: best energy efficiency with smallest footprint

The Aerzen Turbo G5^{plus} series is one of the most compact and efficient turbo machines in its class. With two new sizes, AERZEN offers numerous innovations. In addition to an increased system pressure, the new turbos can also score with an extended control range and an efficiency increase of up to 10%.

The powerful turbo blowers of the Aerzen Turbo series are particularly suitable for use in municipal or industrial wastewater treatment plants and cover with now 21 models a volume flow range from 300 m^3/h to 16,200 m^3/h and system pressures up to 1,000 mbar.

The two new turbo sizes, Aerzen Turbo AT 35 and AT 60, are designed for medium volume flows of 700 - 2,700 m^3/h and package capacities of up to 20 kW resp. 50 kW. Thanks to a completely newly developed motor design, the maximum differential pressure has also been optimised up to 900 mbar.

The development team was able to turn the efficiency screw once again and achieve significant increases in performance. The energy improvement of up to 10% is based on an aerodynamic redesign of the turbo impeller and the spiral housing. Sophisticated CFD analyses were the cornerstone for achieving this new level of efficiency.

For a turbo machine of this size, the new turbos also have a very high control range from 35 to 100% and a constantly high overall efficiency over the entire control range thanks to the AERZEN permanent magnet motor. This motor already meets the future requirements of the IE5 classification. The dimensions of the revised packages are also quite attractive. The footprint of less than 1 m^2 allows transport through even the smallest door dimensions. The footprint of one package saves approx. 60% of the required space. Like all other models, the new duo features the innovative AERZEN air foil bearing with double coating for extended bearing life as well as the new multilevel frequency inverter technology for extended areas of application.

In addition, the AERZEN turbo packages of the G5^{plus} series have been subjected to further acoustic optimisation. Not only has the machine noise been reduced to an exceptionally quiet level of 72 dB(A), but the discharge and piping noise has also been reduced by a significant 10 dB(A), so that in future there will be no need for silencers on the system side. ○

AERZEN's development team was able to further increase the performance of the three turbos.

All advantages at a glance

- Increase in energy efficiency by up to 10%, highest possible efficiency up to 45 m^3/min
- Footprint < 1 m^2 (AT 35/60)
- Extended control range between 35 and 100% with constantly high overall efficiency
- Extended bearing life thanks to innovative AERZEN air foil bearing with double coating, up to 80,000 operating hours independent of start-stop cycles, highest reliability even under extreme operating conditions and pressure fluctuations
- Low-noise operation of 72-73 db(A)
- Lowest maintenance, only regular filter change
- Extended application possibilities at ambient temperatures of up to 50°C
- Active pump protection through automatic speed increase
- Convenient turbo control
- 100 percent oil-free operation
- Plug & Play solution thanks to integrated control and power cabinet

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TVS2500 complements the equipment range from AERZEN Rental

New air compressor for rent – super silent, robust and more temperature resistant than ever before

AERZEN Rental, a wholly owned subsidiary of AERZEN, has added a new air compressor for the 10 bar range to its extensive portfolio of rental solutions. The TVS2500 has been specially developed to meet today's high demands and sets standards in terms of power density, energy efficiency and quiet running.

The TVS2500 for the 10 bar range is AERZEN Rental's largest air compressor to date.

By introducing the TVS2500, AERZEN Rental adds a real power package for large volume flows to its high-performance TVS series and completes its range of 10 bar rental compressors for the oil-free conveying of air. The TVS2500 is the largest air compressor made by the expert for rental packages to date and is characterised by a robust design, efficient technology, particularly quiet operation and high temperature resistance. In addition, the new all-rounder meets the highest environmental requirements and makes a significant contribution to the sustainable organisation of industrial processes.

As application specialist, AERZEN Rental offers its customers a full service package. All machines are ready for immediate use thanks to Plug&Play, the appropriate accessories such as power distributor, cables, piping, cooler, dryer and condensate separator are supplied and, on request, the complete rental system can be handed over turnkey – 24 hours a day, 7 days a week, 365 days a year.

Intelligent rental solution to ensure productivity

Thanks to the frequency inverter, the assemblies can be optimally controlled, so that the exact pressure and volume flow required is always achieved. The variable speed control also enables a gentle start with low starting current. This reduces the load on the power grid during start-up by a factor of 2.5. Another plus: thanks to the infinitely variable speed control, the devices can be used in existing power grids without any problems, thus avoiding environmentally harmful diesel motors.

The efficient cooling inside the assemblies ensures that the rental compressors provide an excellent supply of compressed air even at high ambient temperatures of up to 45°C. Customers can rely on full capacity and do not need to make any arrangements for cooling water or similar. To reduce noise emissions, a special acoustic hood has been developed to ensure particularly quiet operation.

Fit for the future: efficient, state-of-the-art technology

Effective, quiet, energy-saving: the TVS2500 combines the latest machine technology with economic performance as well as sustainability, making it a future-proof solution for almost any requirement. Gerben Keurentjes, Managing Director of AERZEN Rental, makes it clear: "The new TVS series air compressors set new standards in the rental market, where climate change and environmental challenges need to be addressed."

The abbreviation **TVS** stands for "twin-stage, variable speed, super silent."

LET'S TALK. Visit AERZEN at trade fairs 2022

May/June
IFAT
resources. innovations. solutions.
IFAT
30 May – 3 June
Munich, Germany
Hall A3, Stand 351/450
https://ifat.de/en/

June
SOLIDS DORTMUND
SOLIDS DORTMUND
22./23. June
Dortmund, Germany
Hall 4, Stand A08-4
www.solids-dortmund.de/en

August
ACHEMA
ACHEMA
22.–26. August
Frankfurt, Germany
www.achema.de/en

September
FENASAN Feira Nacional de Saneamento e Meio Ambiente
FENASAN
13.–15. September
São Paulo, Brazil
www.fenasan.com.br

September
IPS
TURBOMACHINERY SHOW
22.–26. August
Houston, USA
tps.tamu.edu/future-dates/

September
ANUTEC International FoodTec INDIA
ANUTEC – INTERNATIONAL FOODTEC INDIA
14./15. September
Mumbai, India
www.foodtecindia.com

September
POWTECH 2022
POWTECH
27.–29. September
Nuremberg, Germany
www.powtech.de/en

September
IFAT India
IFAT INDIA
28.–30. September
Mumbai, India
www.ifat-india.com

October
weftec the water quality event
WEFTEC
10.–12. October
New Orleans, USA
www.weftec.org

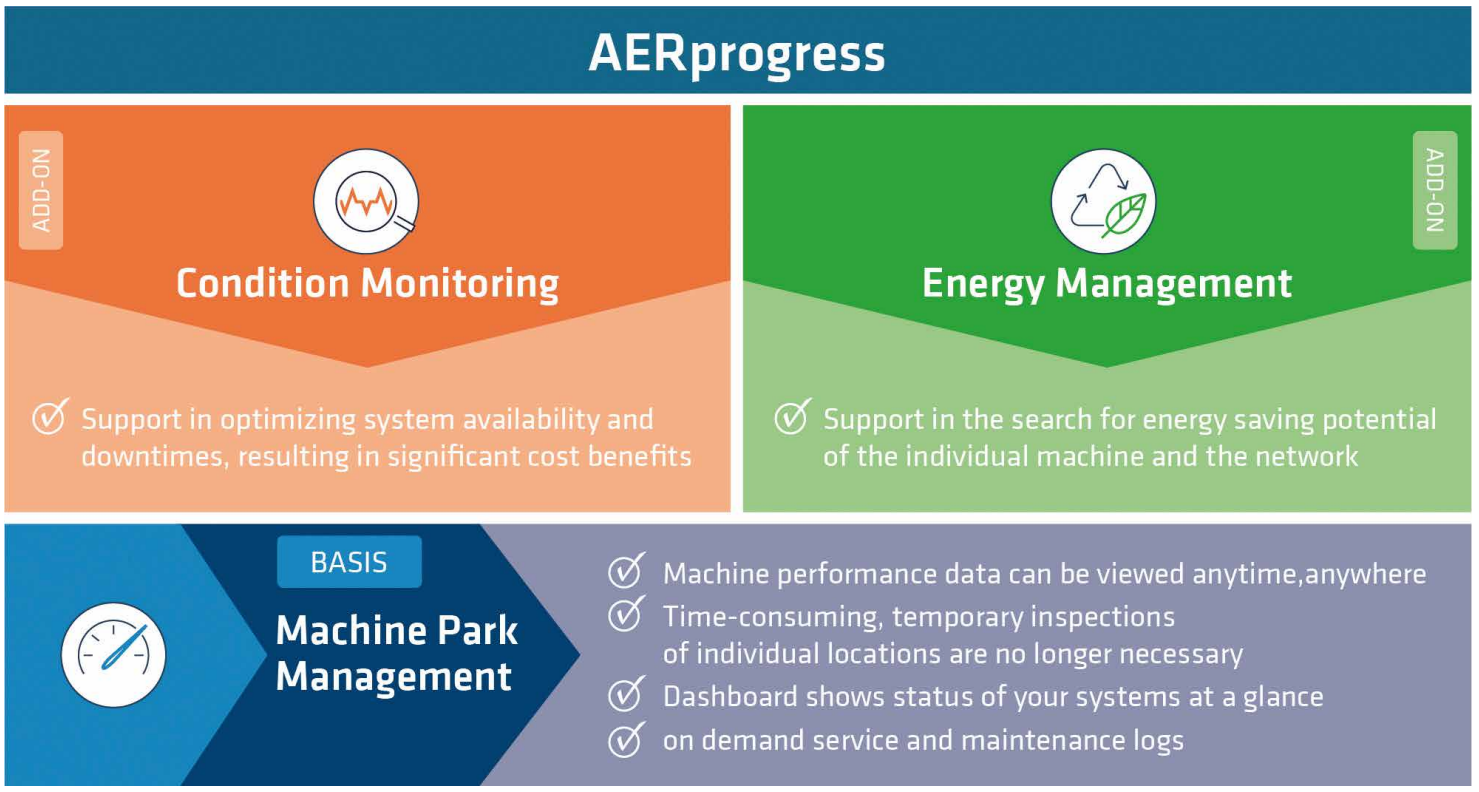
October
TAIWAN INT'L WATER WEEK
TAIWAN INTERNATIONAL WATER WEEK
13.–15. October
Taipei, Taiwan
www.taiwanintlwaterweek.com

November
SOLIDS ANTWERP
SOLIDS ANTWERP
16./17. November
Antwerp, Belgium
www.maintenance-expo.be/en

AERprogress: The new IIoT platform of AERZEN for greater availability and efficiency

Digitised blower: Get more out of it, consume less

Generating process air is one of the most energy-intensive tasks in the field of industry. In view of climate change and the general striving for more sustainability, it is important to generate process air as efficiently as possible and, above all, to use it economically. The steady advance of digitalisation, with its new opportunities, offers excellent opportunities to make process air system more intelligent and their operation more transparent. To this end, AERZEN is bundling its know-how in a scalable Industrial Internet of Things (IIoT) platform called AERprogress.



Performance overview AERprogress

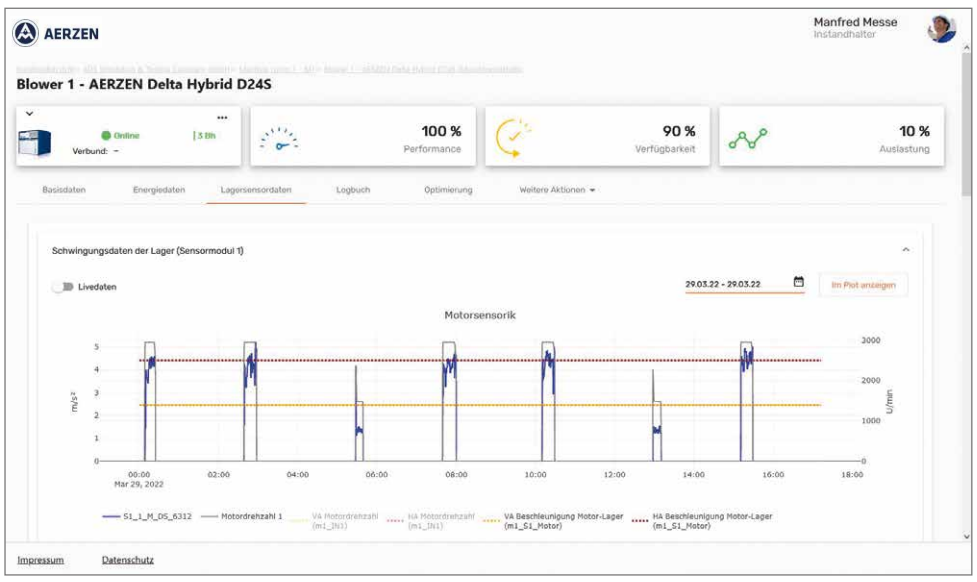
This is what it involves: using existing operating data, determining other key values with a targeted sensor technology and then condensing all of this into meaningful information. This creates the basis for optimised operation - including deducing measures that can achieve sustainability. This statement can be found in the current trend topics of blower technology: energy efficiency, monitoring and predictive maintenance. Instead of stuffing process air units with expensive sensor systems at this point, AERprogress primarily makes use of the signals and operational states already available via the control system. Supplemented by a few additional sensors, statements can be made on the probability of failures, operational states, trends and possible optimisations.

AERprogress stands for transparency

There is a lot involved in process air - both in terms of electrical energy as well as options for improving efficiency. One area of AERprogress is called "Machine Park Management" and forms the basic module. The primary aim is to achieve improvements across the board through intelligent networking of all systems involved in process air. The rule here is that once you have found the ideal setting, you'll want to keep it. For this purpose, the AERprogress basic module includes live monitoring for spatially independent online system management, among other things. Other functions are real-time reports at the push of a button and detailed maintenance and upkeep protocols. Overall, the basic package provides machine park management tools with which the availabilities and capacity utilisations of all connected machines can be analysed and modified - all of this on the premise of the greatest possible transparency.

Condition monitoring module

Based on the IoT solution "Machine Park Management", AERZEN offers the service "Condition Monitoring" as an additional platform module. While the management functions primarily pursue the goal of optimising operations through a smart network, the core of condition monitoring is availability. The main concern here is ensuring operation through intelligent strategies for efficient maintenance and plannable maintenance.



Among other things, AERprogess offers a vibration overview.

The most economical way to maintain machines and systems is on a usage-basis - taking into account, above all, the degree of wear and tear. Since wear and tear is directly dependent on how a system is operated, permanent recording and evaluation of the machine's condition enables a statement to be made as to when it makes sense to initiate measures. The complex consideration of cause-and-effect relationships between the most diverse components within a process enables a complete status assessment of all technical systems. The service package is conceptually designed to avoid high prevention costs due to machine downtime, maintenance effort and redundancy.

Monitoring of bearings with Condition Monitoring

A classic example of the use of a CMS (Condition Monitoring System) is the monitoring of bearings with the help of temperature and vibration sensors. However, using the sensor data without reflection for an alarm system is insufficient. Rather, it must be possible to set limit values and map trends with a CMS. And if the literal red line is crossed, it does not necessarily have to indicate a failure. For example, the temperature of a bearing may be above its operating standard after maintenance work, since fresh oil was added. "The system sounds the alarm, but an expert still has to view the available data and know what they mean," explains Jan Maksel, Product Manager of AERprogress. The same is true of vibration measurement. The available frequency curves can be used very effectively, for example, for status evaluation of ball or roller bearings.

The operator is provided with information on a secure data platform regarding when in all probability unplanned failure of a machine can be expected. Consequently, they are able to shut down its production in time, in order to avoid a total economic loss. This approach can also be used as an early warning system - ultimately also to gain time for ordering a service technician and the necessary spare parts. Jan Maksel: "Ultimately, the focus in CMS is on monitoring the data measured against a limit value - in order to then act in a time-saving and targeted manner."

Optimisation: Where does the energy go?

Sustainability counts - especially when it comes to climate protection through a smaller CO^2 footprint. The energy management module is also designed for the long term. Energy savings can be achieved at the machine, system and network levels. The module covers the machine factors that influence consumption. Among other things, these include intake temperatures, differential and intake pressures and the condition of filter cartridges. The IoT platform validates excess consumption on the basis of the information collected, analyses load profiles, makes suggestions for energy efficiency and compares actual and target situations. Consequently, in this module the influences of load profiles, load distributions, standstill times and network efficiency rates on resource efficiency are applied. Avoiding waste, reducing life cycle costs and continuously monitoring a plant are three detailed aspects of optimisation.

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Conclusion

AERZEN has bundled its know-how in blower technology with the new opportunities provided by digitalisation in AERprogress. The system's openness also makes integration of the services in existing IT and cloud infrastructures possible.

Aerzen USA acquires Vooner FloGard® Corporation

On January 19, 2022, Aerzen USA announced the acquisition of Vooner FloGard® Corporation, headquartered in Charlotte, North Carolina, with manufacturing operations in Greeneville, Tennessee. Vooner is a premier manufacturer of vacuum pumps and vacuum system components.

"The acquisition of Vooner increases Aerzen USA's capabilities and application knowledge and provides us with greater access into some of our core markets of paper, food, power, mining, and chemical," states Aerzen USA President Tony Morris. The newly formed company will operate under the name Vooner FloGard LLC. The most important market for AERZEN in which Vooner operates is the pulp and paper market in the USA, as AERZEN can offer many water treatment solutions here. Vooner also exports in the pulp and paper sector to Sweden, Finland and various countries in South America.

Vooner FloGard has over three decades of experience with corrosion and erosion-resistant vacuum pump applications, including patented vacuum pump designs and vacuum system engineering capabilities. Additionally, Vooner is an OEM for complete vacuum systems for slurry dewatering, evaporation, pneumatic conveying, condenser exhauster, and felt cleaning in paper mills generating aftermarket business of actuators and sales opportunities for long term low-cost vacuum pumps.

At the symbolic acquisition of Vooner by Aerzen USA (from left): Chuck Wunner (President and CEO of Vooner), Friedrich Harten (Vice President AERZEN Americas), Tony Morris (President Aerzen USA), W. T. Daniels (Mayor of Greeneville), Barbara Wunner (Corporate Secretary) and the Director of Economic Development Greeneville.

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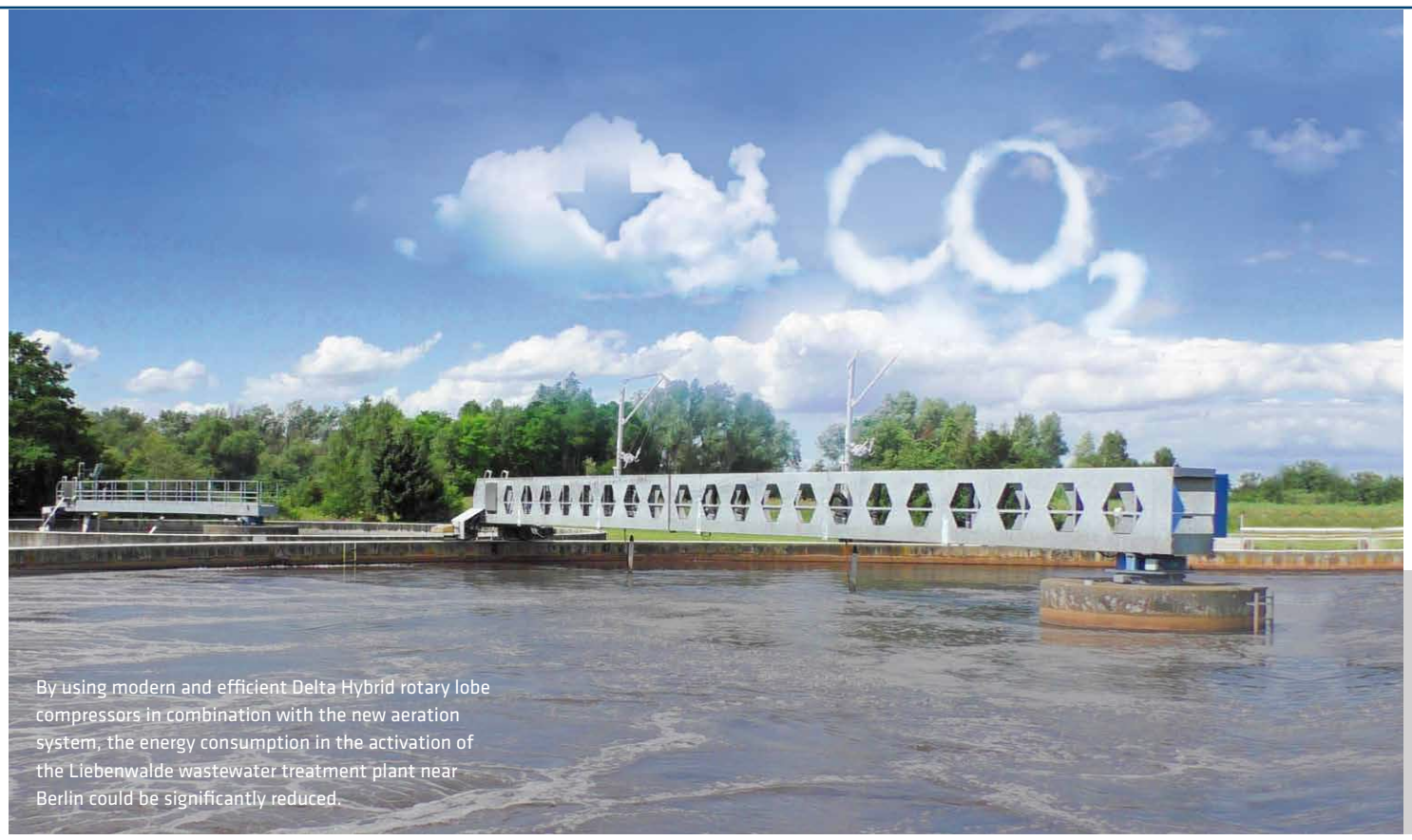

By using modern and efficient Delta Hybrid rotary lobe compressors in combination with the new aeration system, the energy consumption in the activation of the Liebenwalde wastewater treatment plant near Berlin could be significantly reduced.

User report: AERZEN makes the Liebenwalde wastewater treatment plant fit for the future

From power eater to energy leader

Thanks to extensive energy optimisation, the Liebenwalde wastewater treatment plant near Berlin was able to reduce its energy consumption and its CO_2 emissions. A central role is played by the modern and efficient rotary lobe compressors from AERZEN.

Operational safety, reliability and profitability have top priority in wastewater treatment plants. Until now, energy efficiency has usually played only a secondary role, even though wastewater treatment and processing are real energy eaters. But global climate change and the associated changes are forcing plant operators to take action.

The solution: The new, efficient, rotary lobe compressor

Biological cleaning offers the greatest potential for savings, as 60 to 70 percent of the total energy requirement is generated by the activated sludge process. The details:

1. For the Liebenwalde wastewater treatment plant, the investments in increasing energy efficiency and the use of renewable energies have more than paid off. The result: maximum efficiency at minimum cost. Thanks to the state subsidies, energy optimisation was made affordable and climate-friendly wastewater treatment was achieved.
2. The installation of a 100 kWp open space photovoltaic system with a battery storage system. Total area: 550 m^2, performance: 110,000 kWh per year, covering one third of the electricity consumption.
3. Construction of a sewage sludge humification plant for increasing the dry substance content from 6% to 40%, reduction of recycling transports by 90%, renunciation of chemicals, minimised power consumption.

The result: The development from energy eater to climate leader

Thanks to extensive energy optimisation, co-financed by state funds, the Liebenwalde wastewater treatment plant has been able to reduce its power consumption by half and its CO_2 emissions by 60 percent, thus not only saving costs of €60,000 per year, but also making an important contribution to climate protection.

The advantages at a glance

- 62% reduction CO_2 emission
- 55% less energy consumption
- 80% max. conveying rate
- € 61,600 cost savings/year

Summary

For the Liebenwalde wastewater treatment plant, the investments in increasing energy efficiency and the use of renewable energies have more than paid off. The result: maximum efficiency at minimum cost. Thanks to the state subsidies, energy optimisation was made affordable and climate-friendly wastewater treatment was achieved. Wolfhard Raasch, Technical Manager of the Liebenwalde wastewater treatment plant, says: "With the energy optimisation, we have made a real quantum leap and are optimally positioned for the future."

AERZEN sales engineer Christian Meyer in front of one of the two Delta Hybrid.

Thanks to the outdoor installation of the AERZEN blowers directly at the basin, the connecting pipe-work can be extremely short, which reduces energy losses to a minimum.

The web seminar for the user report

In the 45-minute web seminar "System analysis of the Liebenwalde wastewater treatment plant & cost reduction through usage-based maintenance" inform Markus Leidinger (AERZEN, Application Manager Wastewater Treatment Plants) and Arnd Ohme (AERZEN, Business Development Manager & Platform Manager). Simply scan the QR code: