Dear Readers,

An exciting but exhausting year is behind us. We are still accompanied by the COVID-19 pandemic, which brought and still brings with it many changes and new regulations - some of them very unusual. Personal contacts must unfortunately be minimised due to the pandemic. So how do we communicate with each other, learn from each other and discuss innovations? One way is through webinars - and we cordially invite you to join our webinar series.

You can read more about these in this issue. We are particularly pleased about the 20th anniversary of our subsidiary AERZEN RENTAL. Around the clock, for short-term immediate use, and also for long-term needs, AERZEN RENTAL provides innovative plug & play solutions and supports you in securing the success of your business.

AERZEN RENTAL covers temporary air requirements

20 years of success with 100 percent oil-free AERZEN rental machines and complete solutions

On November 1, 2020 AERZEN INTERNATIONAL RENTAL B.V. celebrated its 20th anniversary. This subsidiary of Aerzener Maschinenfabrik GmbH offers a wide range of 100 percent oil-free rental machines and accessories, providing complete solutions covering numerous areas of application. With several depots in Europe, delivery is guaranteed to customers around the clock, every day of the year. Since 2019, this also applies to the USA and Canada, which are served by AERZEN RENTAL USA, based in Atlanta.

With the entry of AERZEN into the rental machine business in 2000, a success story began: established as the rental business of AERZEN Nederland B.V. in Duiven, AERZEN RENTAL has grown continuously since then. The headquarters remain in Duiven, and depots in Germany (Rinteln), Spain (Madrid) and the United Kingdom (near Birmingham) have been added. A new depot near Stockholm in Sweden will open at the beginning of 2021. The team of Managing Director Gerben Keurentjes consists of about 20 employees. These include five process engineers who each have a high level of expertise in electrical and mechanical engineering, three technicians, three customer service staff, and an eight-person sales team which is headed by Jean-Michel Dufour.

Portfolio for low pressure and compressed air applications

For customers and interested parties, AERZEN RENTAL holds the complete AERZEN machine portfolio for low pressure and compressed air applications in pressure ranges from -700 mbar (g) negative pressure to 10 bar (g) positive pressure ready - from turbo blowers to positive displacement blowers and rotary lobe compressors up to single and two-stage compressors. Thus, AERZEN RENTAL offers for each differential pressure or volume flow the most appropriate and energy-efficient machine for every requirement - an offer that is unique in the rental market. There is also a wide range of accessories, including power generators (transformers/diesel units), power distributors, power cables, piping, coolers (air-air coolers, water-air coolers), dryers and condensate separators.

Typical areas of application include:

• Pneumatic conveying of bulk material
• Oxidation and combustion processes
• Transport of neutral gases
• Compressed-air supply during tunnel construction

Products from AERZEN RENTAL are specially developed for the rental market: they are always modular and can be easily modified to suit specific requirements. All rental machines are therefore equipped with a wide range of options.

In case of need: AERZEN RENTAL is there.

Klaus-Peter Glöckner,
Chief Executive Officer

Cordially yours,
AERZEN RENTAL also offers internationally.

This is the demand that the AERZEN Group aims to fulfil by learning from each other, creating connections and added value - Free training for customers

AERZEN webinars
Free training for customers

Learning from each other, creating connections and added value - this is the demand that the AERZEN Group aims to fulfil by means of AERZEN webinars. Earlier this year, online events are also offered internationally.

The webinars offer our customers an extraordinary added value: in just 45 minutes all participants can acquire advanced knowledge about an important topic. Questions can be asked at any time via the live chat option, because our experts will continue to answer questions after the event - and all this is completely free of charge.

The high number of participants in the webinars shows from the beginning how well these online sessions are being received. This initiative was launched in the German-speaking market on 19 June with the seminar “Implementation of savings potential in wastewater treatment plants”. Since then, three more webinars have been held, at an interval of eight weeks between each.

International offer

Initially, the online events with topics ranging from the wastewater treatment plant of the future, to resource-efficient wastewater treatment using individual reference plants, were addressed to the wastewater markets in German-speaking countries. But AERZEN has achieved success with webinars aimed at other countries as well. The first events in the Spanish language has been very well received. In order to make the AERZEN webinars accessible to a wide circle of customers and partners, the presentations will be provided with an English language voice-over and made available on the country pages in the new year.

In 2021, AERZEN plans to offer further online offerings. The range of topics will be expanded by addressing not only the area of wastewater but also other sectors. Our experts are already working hard on these future webinars.

Added value for customers through useful content

In addition to the useful content, the AERZEN webinars are also an opportunity to exchange new ideas and thoughts with other participants.

Added value for customers through useful content with practical relevance and interactive exchanges are the focus of the AERZEN webinars.

Contact details

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AERZEN webinars
Free training for customers
New assembly concept VMX 16 bar developed

The AERZEN division “Biogas and Standard Gas Products” now offers VMX assemblies for discharge pressures up to 16 bar. Based on the experience gained with the previous VMX 13 bar assemblies, this newly developed assembly concept for VMX 16 bar closes a significant performance gap in the upper pressure range.

AERZEN thus now fulfills an essential demand of many customers for a cost- and maintenance-efficient concept for the compression to 16 bar of oil-compatible gases such as biogas, biomethane, natural gas, synthesis gases, hydrogen and many more.

Within the scope of a development project, both the compressor stage and the associated compressor package were redesigned and further standardised. The new compressor concept now offers a wide range of standardised options to choose from, such as three different instrumentation variants (Standard, High End or Low Cost). This is additionally rounded off by the possibility of controlling and monitoring the new VMX 16 bar assemblies by means of the machine control AERtronic. With the connection to the AERtronic a cost-effective alternative to conventional control systems is also available for this series of assemblies.

The assemblies also offer the usual reliability, availability, robustness and ease of maintenance - in other words, everything the customer needs for smooth operation. The simple and manageable assembly concept will also be reflected in short times both for commissioning and for necessary maintenance work. Brochures and further information will soon be available on the website www.aerzen.com.

Two separate turbo stages in one assembly

New Multicore Turbo Series

The newly developed turbo blowers from AERZEN represent an efficient and space-saving alternative to conventional geared turbos or multistage central compressors for wastewater treatment plants with high oxygen demand.

The regulation of the oxygen content as required is the key to an optimal biological process, which is necessary for the decomposition of organic material in the aeration tank.

The AERZEN Multicore turbo blowers are based on air foil bearing technology and are equipped with two separate turbo stages in one assembly. So far, the most powerful speed-controlled turbo blowers have currently had a connected load of approx. 400 kW. Now, even larger wastewater treatment plants will be able to replace their outdated assemblies with modern airfoil bearing technology. Like the proven G5 and G5x-series, the single stage turbo blowers of the Multicore series are characterised by very low energy consumption and cover a wide volume range on the turbo blower market.

The new sizes AT600 and AT800 enable maximum volume flows of 29,000 m³/h and outputs of up to 600 kW, and all this with an extremely wide control range of 15 to 100 percent of the nominal volume flow.

New and revised marketing materials

AERZEN has recently revised or introduced new marketing materials for the application areas of wastewater treatment, food technology and process gas technology.

How can energy costs be saved in wastewater treatment? How can hygienically pure process air be generated? What requirements must modern process gas compression meet? These are some of the questions which AERZEN customers will have to ask themselves in order to address the challenges posed by Industry 4.0, globalisation and constantly increasing cost pressures. We are supporting you in dealing with these challenges and offer answers to your questions in our new brochures. You can download the new brochures using your CustomerNet access via our website, or printed versions can be ordered by completing this request form.

https://www.aerzen.com/company/request-and-contact/directory-of-contacts.html

AERZEN - the number one worldwide

The “WirtschaftsWoche” magazine has again ranked AERZEN as a world market leader in its special issue “The 500 Secret World Market Leaders 2020”. The coveted listings go to companies which are worldwide number one or number two in at least one relevant market segment. Accordingly, AERZEN is world market leader in the field of positive displacement blowers and screw compressors, thanks to its sizeable market share.

New Head of Material and Logistics

Rainer Hellweg took over the management of the Material and Logistics division in July 2020. As Chief Procurement Officer, he is also responsible for co-ordinating the worldwide purchasing activities of the AERZEN Group. The Graduate Industrial Engineer brings a wealth of professional experience to his new role at AERZEN. Rainer Hellweg worked for the mechanical engineering company and AERZEN customer Haver & Boecker for more than 20 years. Among others, he worked at its subsidiary in Brazil for a long time. In 2005, he took over as Purchasing Manager of Haver & Boecker and from then on also promoted the worldwide networking of purchasing within the group.

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The Triple-A process is revolutionising primary treatment

50 percent capacity increase without new tank construction

In the Austrian Zillertal, the wastewater treatment is currently successfully raised to a new technological level. Triple-A is the name of the process that can achieve twice as much capacity in high-load biology as conventional methods. Behind AAA at the Strass wastewater treatment plant are also three companies that are jointly implementing the new process: ARAConsult, Aquaconsult and AERZEN.

A higher degree of efficiency in preliminary purification provides the Strass wastewater treatment plant with a gain in efficiency across the board. The plant, which belongs to the Achental-Inntal-Zillertal (AIZ) wastewater association, has so far been designed for 167,000 population equivalents (PE) per day. The average annual load is 20,000 PE. Started up in 1989, extensive modernisation and repair work was due after 30 years - from plant technology to concrete refurbishment. Moreover, the inflow values no longer matched the size of the plant - especially during peak tourist periods. With a view to future-proofing, one of the aims of the modernisation was to increase the capacity of the plant by 50 percent to 250,000 PE - but without building new tanks. "So we have to make the process much more productive," emphasises plant manager Christian Fimml. The AIZ invested €1.8 million in technology instead of in concrete that takes up space.

Making the preliminary step more efficient

In the past, the comparatively small tank was in high load phases the bottleneck in wastewater treatment in the Zillertal. Especially during the ski season, the A level turned out to be a bottleneck with a steadily decreasing efficiency. Today, the AAA process is used in Strass. In this process, the inflowing wastewater in the existing sedimentation tanks undergoes a sedimentation and filtering process of two hours. "Triple-A," which stands for "Alternating Activated Adsorption." Finely blown air plays a decisive role in activating biosorption. It is supplied by two AERZEN turbo blowers of type AT100-6.6 S. Each of the energy efficient G5plus assemblies delivers up to 70 standard cubic metres per minute with 84 kW motor connected load. "We work with an overpressure of up to 450 millibar," reports Patrick Quitt, sales engineer at AERZEN Austria. "The delta is enough to put the air into the water in two separate compression stage rings." The strip aerators are distributed in two different depth levels at the bottom of the round tanks. The independent strands are due to the fact that the existing tanks become deeper from the outside to the inside like a funnel. On the one hand, the air supplies bacteria in the sludge layer with oxygen, but on the other hand, it also takes over the lifting of the forming solid layer in order to transport it out of the tank.

In the AAA tank, four phases occur with a cycle of about one hour. Here, the layer of sludge that forms takes over an essential filter function. The solids settle to the bottom of the tank during the non-aerated phase. In the AAA process, this layer is used as a natural filter. Over a period of about half an hour, fresh wastewater is fed into the reactor tank from below. The sludge cover prevents mixing with the already pre-treated water near the surface.

Sewage sludge as a natural filter

During the approximately half hour inflow, the pre-treated, near-surface water is displaced and flows via overflow into the second purification stage. On the one hand, the sludge layer acts as a barrier, on the other hand, it acts as a filter and a place for massive COD degradation by bacteria. An EPS matrix (Extracellular polymer substances) is formed in the process. EPS are long-chain compounds that are formed by microorganisms. EPS are often referred to as biofilm and help the cells to establish a connection with neighbouring cells. The purification and filter effect is so effective that it agglomerates 60 percent of the organic matter contained in the wastewater and also binds nitrogen strongly. According to the experience, classic primary wastewater tanks achieve only 30 percent. A further advantage is in the technical realisation. The process does not require a complex clearing mechanism to get the sludge out of the tank. Air is enough - and the two turbo blowers from AERZEN provide that as well.

Air in the first purification stage? The answer to this can be found in the process flow. In the AAA process, after the briefly sketched half-hourly inflow, the sludge layer that has formed is lifted by compressed air and transported via a vortex-like turbulence into the thickener in the middle of the tank. Subsequently, the two AERZEN Turbos take over the so-called activation of the remaining sludge. Here, the bacteria build up the EPS-matrix so that the filter can work. Once this has formed, the next inflow starts.

Turbo blower as first choice

The turbo blowers have been designed together with AERZEN. An essential factor in the selection of the aeration technology was to use assemblies that have the lowest possible energy consumption. The extremely durable and maintenance-free air bearing of the turbo stage from AERZEN enables the compact, energy-efficient assemblies with their high power density to be used throughout the entire control range. The advantage of AERZEN is clearly the variety in the programme. The customer can select the right assembly for the application and knows that the machines work reliably.

Summary

The new process is particularly interesting for wastewater associations and municipalities that are about to expand their plants. The investment pays off very quickly. Even if the demand for electrical energy increases in the preliminary purification, is all the less needed in the subsequent aeration. The less organic matter arrives in the aeration stage, the lower the corresponding oxygen demand.