THINK RED!

THE VOGELSANG MAGAZINE



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VOGELSANG
ENGINEERED TO WORK

WE THINK RED.

"Red symbolizes vitality, dynamics, progress and passion – a color that really suits us. Standing still is not part of our philosophy."

Harald Vogelsang, Managing Director

Dear readers,

We are very pleased to announce the third edition of our THINK RED! magazine. The mere fact that we publish such a magazine shows our understanding of service and customer centricity. Whereby we as a family business, of course, have always acted in the spirit of partnership with our customers and employees.

Because service is also of increasing importance for mechanical engineering companies, in this edition we take a much closer look at this issue and explain what's involved in service – in general, and for us at Vogelsang. We shed light on developments in this field and emphasize the great role of digitization.

To gain further insights into our fields of activities and applications and the use of our machines abroad, read our articles about international careers at Vogelsang and also a case study on the use of the BioCut at Juncà Gelatines. By investing in this universal pump system, consisting of a rotary lobe pump with an integrated grinder, the Spanish company could not only significantly increase its collagen yield; at the same time, downtimes and power consumption also decreased significantly - a result that is quite typical for Vogelsang equipment. Another project report, in this case about the expansion measures of the Hamburg-Langenfelde railway depot with a large number of pumping and supply stations from Vogelsang, in turn illustrates how efficient and user-friendly our technique is.

Our last edition featured efficient and environmentally friendly measures that help us with our production processes, and this time you can read about the technical structure of our pump test stands and how we succeeded in saving energy during the testing processes. An idea that once again reflects the inventiveness of our R&D engineers. And last but not least, we explain why the Vogelsang dribble bar system is still the classical application technique for liquid manure spreading in the agricultural world and why it is so popular worldwide.

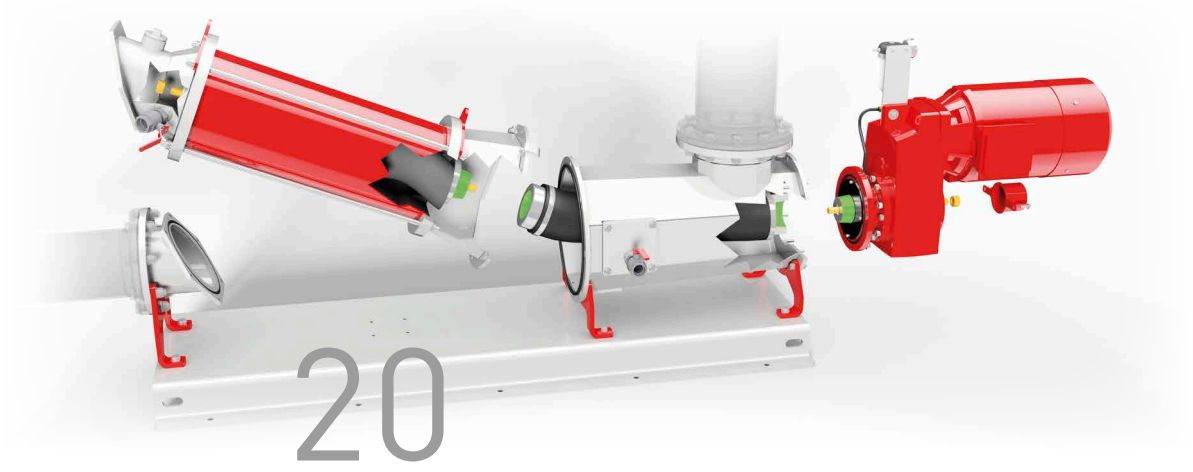
So it is with good reason that we present our history and many stories here with a certain pride, and hope you feel you are being well informed as well as being entertained.

Yours sincerely,



Harald Vogelsang

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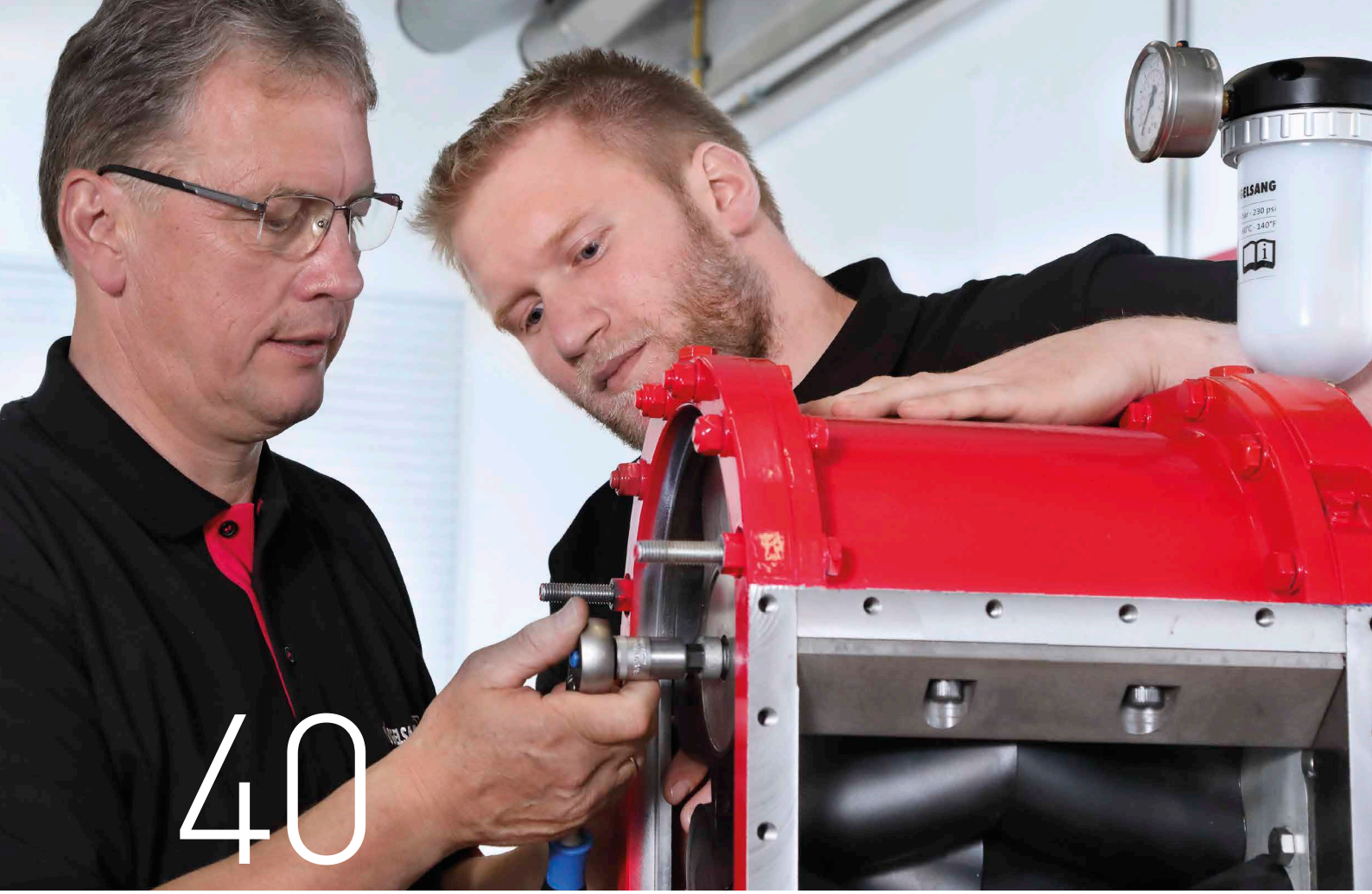
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NEWS



A CLOSE EYE ON THE FUTURE

New and curious faces at Vogelsang

A total of 19 apprentices began their professional lives at Vogelsang on August 1, 2018. As a traditional company with an international focus, the "newbies" are learning their craft with us as precision mechanics, technical product designers, mechatronics specialists and electricians in automation technology. We have also found some friendly new faces for our vocational training professions for industrial clerks and warehouse logistics specialists. Three new colleagues are completing a dual course of study to become Bachelors of Engineering in Mechanical Engineering with us and at PHWT in Diepholz.

Promoting new talent for the benefit of everyone

Over 650 employees produce components, products and special machines for the business units agricultural technology, biogas, industry, transportation and wastewater every day in Essen/Oldenburg. Our mechanical engineering company is committed to training in-house. *"Training our own specialists, keeping them in the company and helping them to develop further professionally – that is our philosophy,"* says Harald Vogelsang, Managing Director.

Exciting outlook for career starters in an international environment

This is why an average of up to 60 apprentices from all three vocational training years work at Vogelsang. Working on internationally demanding projects and developing and manufacturing innovative products opens up completely new perspectives. This is particularly interesting to young people, as it opens up opportunities for them that other companies do not provide. ■

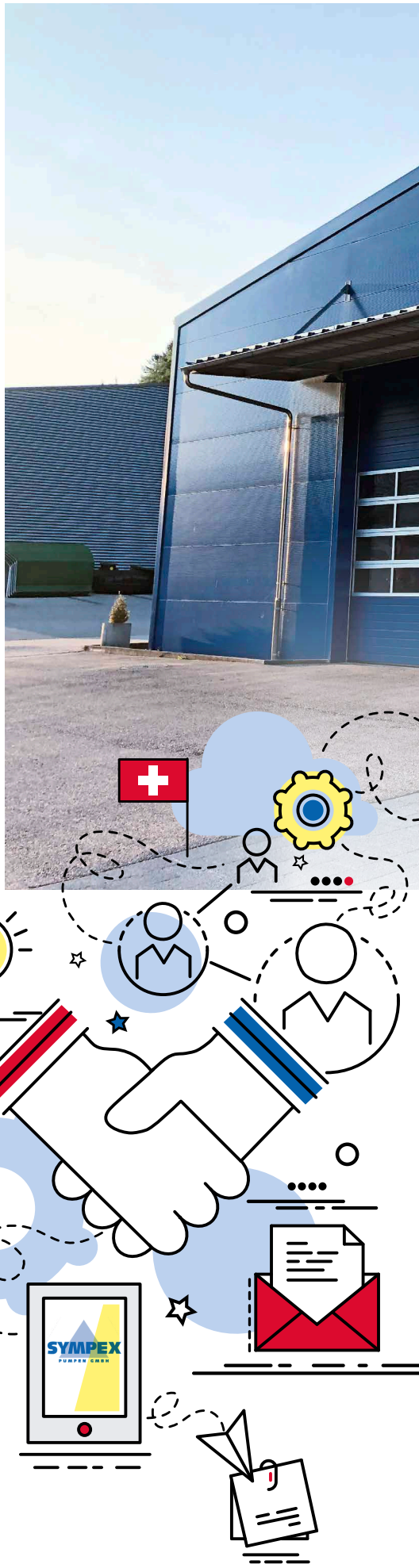


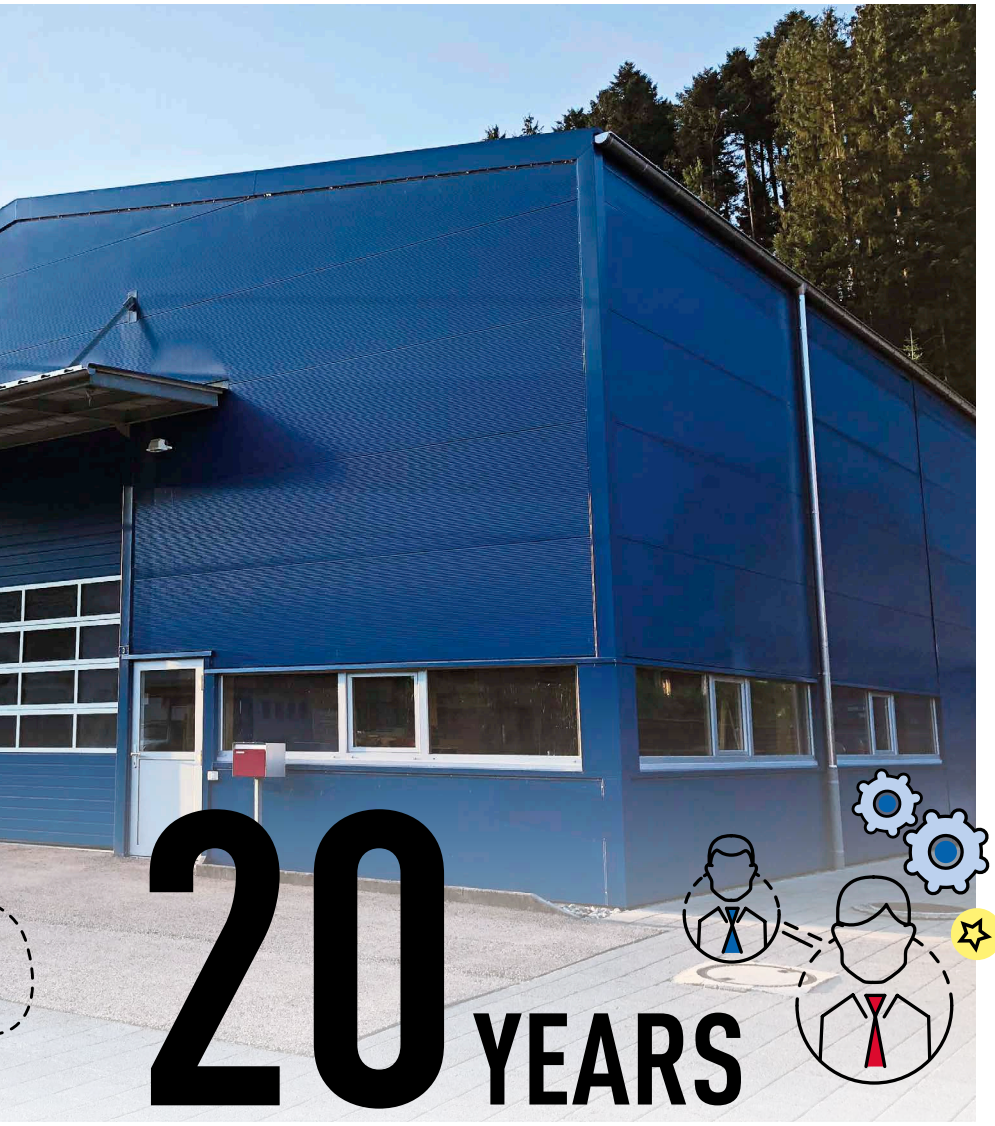
VOGELSANG'S RUNNERS IN 2018

The Remmers-Hasetal marathon, which is very well known in the region, took place in June of this year for the 16th time with its highest ever number of runners.

It is a large summer evening running festival with a good atmosphere and many spectators. The almost 3,000 registrations represented a new record number of participants.

Some sporty Vogelsang employees successfully participated in the most popular format, the relay marathon, wearing the Vogelsang jersey as they crossed the finish line. We extend our thanks for this great achievement and for participating with our company to Rainer Zobel (International Sales), Violeta Paniello (Marketing), José Gimeno (International Sales), Birte Bollhorst (Marketing), Andreas Fastenau (R&D), Steffen Knabe (R&D), Michael Rolfes (R&D) and Timo Kroner (Production). ■





20 YEARS OF SYMPEX SWITZERLAND

Vogelsang partner company celebrates its successes

The Swiss traditional retailer Sympex Pumpen GmbH, headquartered in Bowil, sells, installs and maintains Vogelsang products in Switzerland with great success. Our partner company is celebrating its 20-year anniversary in 2018. *"We are looking back with pride on 20 years of cooperation with Vogelsang and our constant growth during these years. We sell mainly pumps and macerators from Vogelsang and we have been very successful with this product portfolio in the Swiss market,"* says company boss Hansueli Zbären.

Even today, rotary lobe pumps represent the heart of Sympex's sales business. *"These very high-quality pumps are not a universally usable retail product. Together with our customers, we are looking for specific solutions. Providing support and service are particularly important in this context. It takes a lot of experience, knowledge and training to impress customers with our products and corresponding range of services. We have found the right partner for this task in Vogelsang. Regular training courses and knowledge-sharing at the Vogelsang headquarters ensure we are always kept up to date,"* adds Zbären. ■

www.sympex.ch

PERSONAL INFO AT VOGELSANG

NEW DEVELOPMENTS IN AGRICULTURAL TECHNOLOGY



Markus Kolbeck took charge of the new area "Research and Development and Product Management for Agricultural Technology" on September 1, 2018. This area includes the complete agricultural technology product portfolio. An essential goal for the newly created department is to bring together development activities as well as to create a more target-oriented feedback process between customer needs and product development, resulting in correspondingly faster reaction times. This ensures smooth progress towards marketing/sales and production is therefore guaranteed. This encompasses the entire process, from idea generation and the development of new products up to their launch on the market, in close cooperation with marketing and sales. Kolbeck: "*We will incorporate customer feedback into the development of our products even more and more quickly, and we will accelerate the development phase, meaning we can react even more quickly to changed requirements and trends.*" Markus Kolbeck, Bachelor of Engineering in Mechanical Engineering, has been very successful in various positions at Vogelsang in the areas of R&D, Construction, Product Management and Service since 2016.



Henning Ahlers has been Head of Sales for agricultural technology in Germany since April 1, 2018. Following 15 years of successful activity in various areas of sales, including OEM and large customer support, Henning Ahlers took over responsibility for Germany in April of this year. In order to also be able to fully capture the needs and requirements of the OEMs and the end customers (farmers and contractors) in the future, he will retain a sales territory as well as supporting some OEMs. *"My focus will remain on direct customer service. Only a regular presence and personal dialog with customers allows us to recognize trends early and transform them into market-oriented new product developments together with Research and Development,"* says Ahlers. ■

TRADE SHOWS WITH A COMMON THEME

VOGELSANG AT ANUGA, ACHEMA AND IFAT

In the first half of 2018 Vogelsang successfully presented itself at – among others – Anuga FoodTec and Achema, the two leading international trade shows for food and process technology, as well as at IFAT, the leading trade show for water, sewage, waste and raw materials management.



© Dechema e. V./Jean-Luc Valentin



ANUGA FOOD TEC

Anuga FoodTec, Cologne, March 20-23, 2018

At Anuga FoodTec in Cologne, Vogelsang presented for the first time the new Food-Mixer from beba Technology GmbH & Co. KG, part of the Vogelsang Group, in addition to its proven rotary lobe pumps of the VX and IQ series. The new food mixer, with its patented oscillation foaming technology for gentle beating and the maintenance-free mixing head without wear parts, is particularly suitable for the area of sweet and baked products such as creams, chocolate, yogurt and puddings.





ACHEMA2018

Achema, Frankfurt, June 11-15, 2018

At Achema in Frankfurt, Vogelsang exhibited rotary lobe pumps of the IQ and VX series, which are particularly suitable for aggressive and highly viscous liquids such as oils, paints and acids. With their robust equipment and compact design, these rotary lobe pumps are designed for pumping critical media and have already proven themselves in many different areas of application in the chemical industry.



IFAT

IFAT, Munich, May 14-18, 2018

The new XRipper XRG wastewater grinder was the center of attention in Munich at IFAT, the leading trade show for water, sewage, waste and raw materials management. The new XRipper series is especially designed for particularly large sewers and very high flow rates of up to 3,000 m^3/h. The easy maintenance and fast service of the equipment, which is made possible by the new one-piece ripper rotors, was very popular with the visitors.

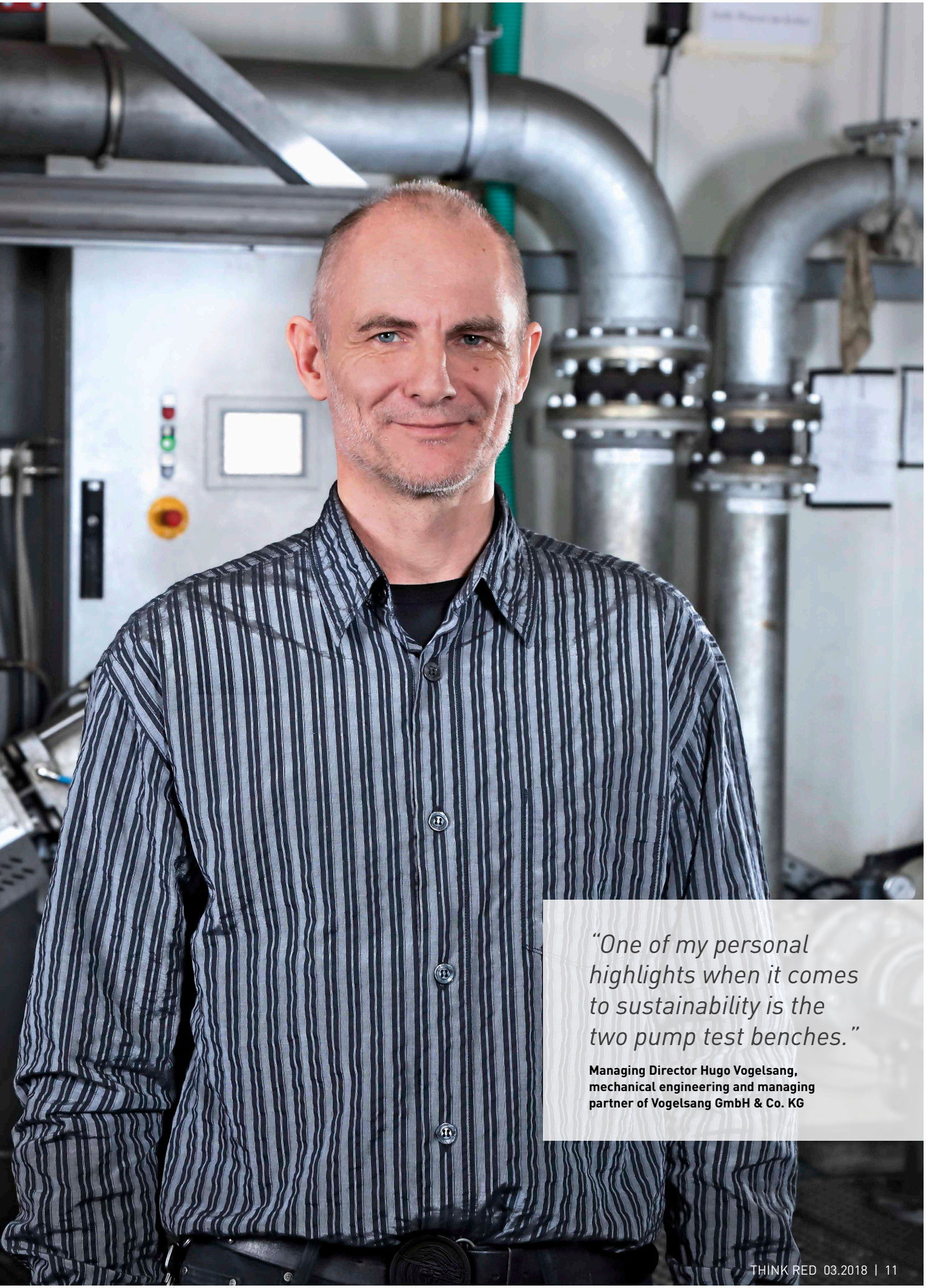
PUMP TEST BENCH

QUALITY CONTROL WITH ENERGY RECOVERY

A customer-oriented focus and forward-looking approach are fundamental principles at Vogelsang GmbH & Co. KG that are central to everyday work. Beyond offering high-quality products and expert services, these basic principles also inform our consistently deliberate and sustainable attitude to resources. This is evident in the many measures we have taken to improve energy efficiency, as well as the way we reuse residual materials and avoid waste.

Reconciling these two aims, or even combining them in one and the same measure, is something that many mechanical engineering companies believe to be difficult. The two pump test benches in our plant prove the opposite: They enable precise and efficient checking of the pumps produced, in line with the customer's interests, yet without consuming large quantities of energy. The secret is that, unlike in conventional testing processes, the test pressure is generated by rotary lobe motor generators – an innovative concept that enables energy recovery.



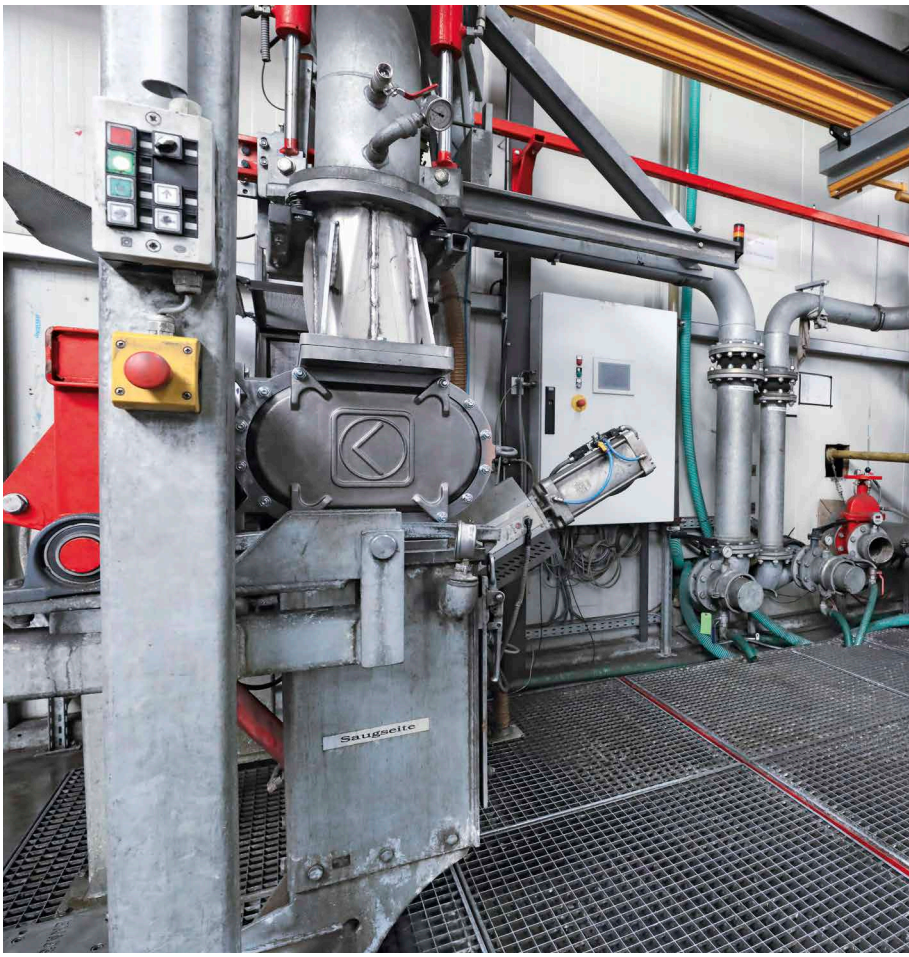


"One of my personal highlights when it comes to sustainability is the two pump test benches."

Managing Director Hugo Vogelsang, mechanical engineering and managing partner of Vogelsang GmbH & Co. KG

QUICK TESTING

THANKS TO AUTOMATED PROCESSES REDUCES ENERGY REQUIREMENTS



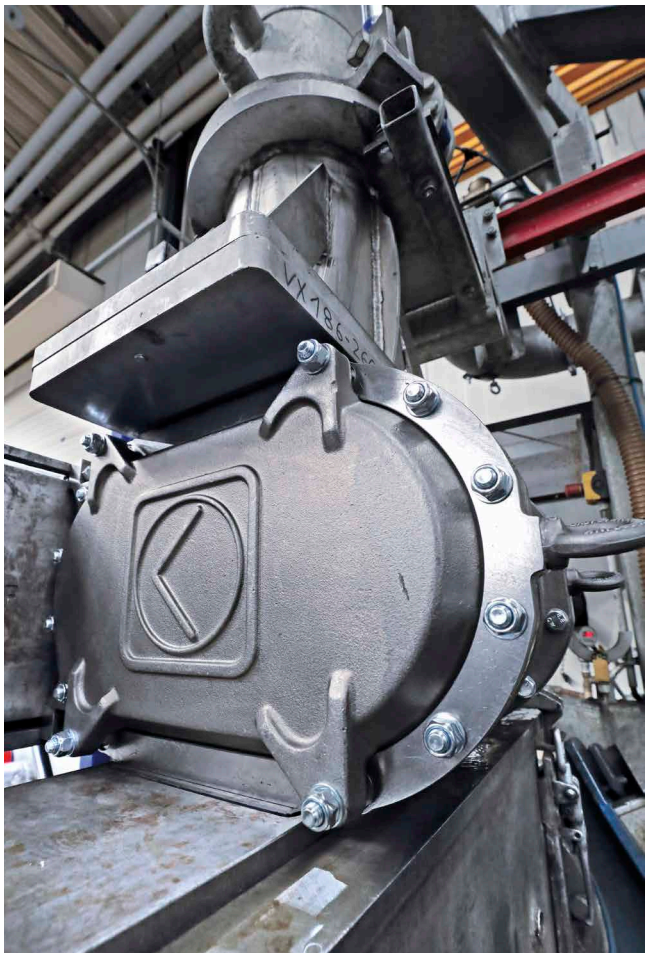
At Vogelsang, no pump leaves the factory untested. It's not only the technical values, such as noise emission, the required drive power or the coat thickness of the paint that has to be right – as far as most customers are concerned, the most important thing is the capacity at a specific pressure. This is why checking the performance data on the test bench that was developed in-house is a key part of the production process. The testing parameters, such as the capacity, speed or pressure, are based here on the customer's requirements. At Vogelsang, we don't produce the necessary counter-pressure with throttle valves, as is usually the case; instead we use brake pumps, as the rotary lobe motor generators are called in the company. These pumps operated as motors are able to recover a proportion of the energy. The people involved like to reminisce about the project's development and implementation.

Both a challenge and a highlight

As a future-oriented and environmentally conscious manager, the inheritor of the company, Hugo Vogelsang, sees energy and resource-saving production as part of everyday management. He is always on the lookout for optimization opportunities and will lend a sympathetic ear to any suggestions. For one thing, this is in order to reduce costs, but it's also to cause as little strain on the environment as possible, e.g., by reducing energy consumption or being careful with natural resources. *"One of my personal highlights when it comes to sustainability is the two pump test benches,"* says Managing Director Hugo Vogelsang.

The old test benches on the Vogelsang plant premises had got a little long in the tooth and were no longer up to the job at hand: they were too slow and too expensive. Simply building another bench to increase capacities was not enough for the busy entrepreneur – as always, he wanted to improve efficiency. And so the results of three diploma theses and many hours of development went into planning and developing the project for the first purpose-built test bench for production. It is remarkable in many ways. Firstly, we should mention the test bench's high degree of flexibility: As it has two test stations, it can be used to test everything from the small to medium pump series, right through to the medium to large series. The brake pumps required to recover the energy are





Left: The two test stations enable quick and energy-saving testing of Vogelsang rotary lobe pumps.

Right: Thanks to the hydraulic clamping and computer-controlled test run, it takes only 15 to 20 minutes to test a rotary lobe pump.

located in the basement of the test bench – likewise one small and one large, to match the capacity of the pumps being tested. Depending on the customer's requirements for capacity and pressure, the special design means that large pumps can also be tested with the small brake pump or, in extreme cases, both brake pumps can be used to test one pump.

Furthermore, both brake pumps are designed as two-stage so-called marathon pumps, which opens up even more possibilities. For example, they can run in single-stage or two-stage operation, i.e., with half the delivery rate and twice the pressure. In addition, unlike throttle valves, brake pumps make it possible to measure negative volume flows, because the brake pumps can also run backwards.

The pumps to be tested are "connected" to the test bench in just a few minutes. To do so, the rotary lobe pumps are simply hydraulically clamped by special connector adaptors whose clamping force are controlled according to the pressure. Naturally, the conceptual design also provided for the option of connecting and testing pumps or entire pump systems to the test bench by means of standard lines. Moreover, everything necessary to perform special tests with independent classification societies, such as Bureau Veritas, DNV GL Group or Lloyd's Register, is also available.

Besides its variety of possible uses, the test bench also stands out for its high degree of automation. Once the pump to be tested has been clamped in or connected to the pipes of the test bench and the drive, the computer takes over, performing a complete test – from priming and running-in, through to automatic draining of the pump. The data and specification values needed for the test are sent to the test bench control from the ERP system. The bench's test application uses the order number, which is scanned in from a bar code, to determine the relevant data, after which it automatically tests the pump and saves and documents the results of the test back in the ERP system.

"One key advantage here is that we avoid reading and transcription errors, which are often a problem in manual systems," explains Hugo Vogelsang. Equally, the system takes less time to perform the individual test. The entire test of a rotary lobe pump is completed within 15 to 20 minutes. Another positive side effect of this is that less energy is needed to test each individual rotary lobe pump. ▶

ENERGY RECOVERY INSTEAD OF ENERGY LOSSES

"Usually, throttle valves are used to build up the counter-pressure. This is easy and low-priced, but the disadvantage is that the electricity needed to drive the pump has no further use beyond generating the pressure and is simply transformed into thermal energy," states Hugo Vogelsang, explaining the reasoning behind the development of the pump test bench. *"Furthermore, this heat causes the temperature of the test medium to rise. To ensure precise and meaningful test results in extreme cases, you then need to consume extra energy cooling down the test medium,"* he explains further.

For its test benches, Vogelsang therefore decided on a concept that is familiar to many from the electromobility sector. The "braking energy" is recovered and fed right back in, instead of being lost as thermal energy. The basis is provided here by a Vogelsang rotary lobe generator: With just a few minor adjustments, a rotary lobe pump can be turned into a rotary lobe motor. This is an interesting variant that can convert hydraulic energy into electrical current and is used in a variety of contexts.

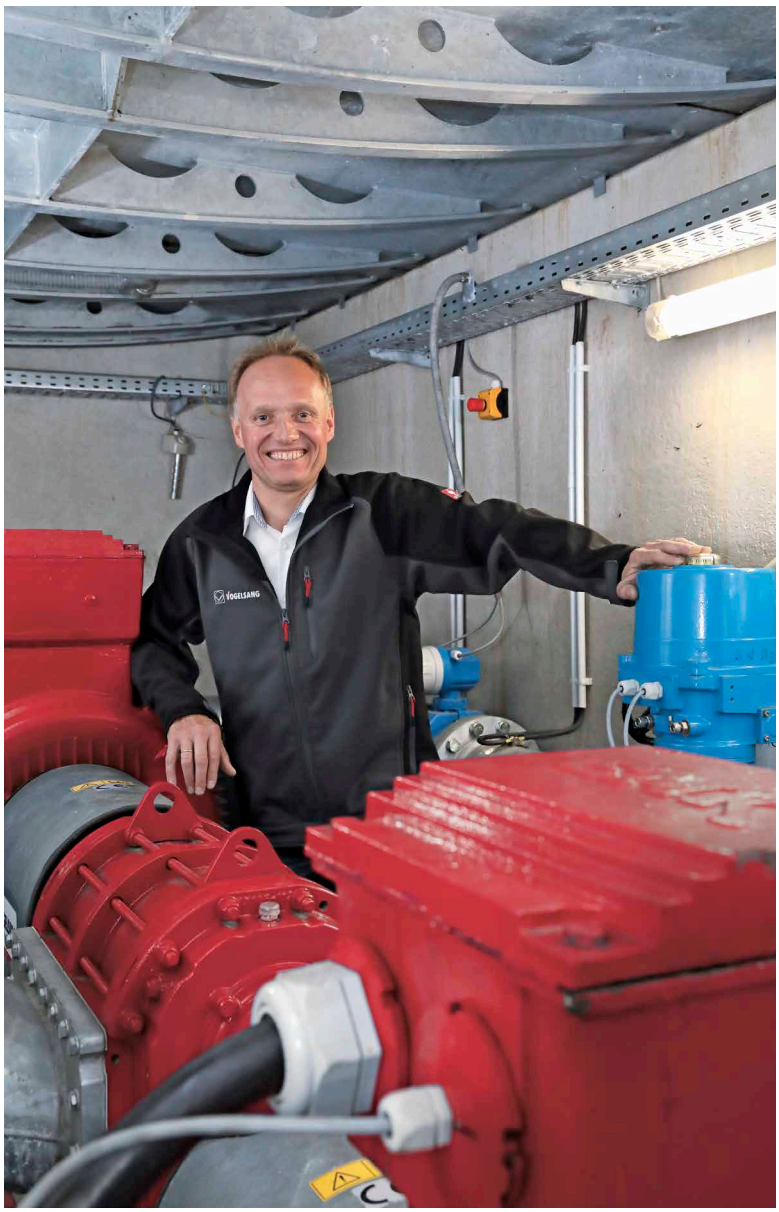
There are two of these rotary lobe generators acting as brake pumps in the basement of each test bench of the Essen plant. Each test station also has two special variable frequency drives. The highlight of the installation is that the current generated by the rotary lobe motor generator is not fed into the normal power grid but directly back into the variable frequency drive to drive the pump being tested. This greatly increases the efficiency. However, as it is impossible to generate more energy than the drive consumes, there is no recovery fed back into the grid. There is therefore no need for measuring and shut-off devices and no need for standardized measurement – either to document the electricity quantities generated or for settlement with the electricity supplier. Besides, thanks to this installation, the brake pump immediately recovers a large proportion of the energy used for the drive – up to 60 percent is made directly available to the drive again. The system then only needs to draw 40 percent of the necessary drive power from the grid. This results in a significantly lower connected load requirement for the test bench.

Energy recovery in research and development

With the second pump test bench set up in the development department, Vogelsang went one step further. As the rotary lobe pumps are continuously being developed further, there are always new things to be tested. Long-term tests for determining the service life offer a particularly strong potential for energy recovery. *"If, in a pump endurance test, we can recover 20 kW of the 35 kW of drive power required, we would, of course, be very happy,"* explains Paul Krampe, Head of Research and Development at Vogelsang.

When a new building was built for the department, it was the ideal opportunity to set up a pump test bench. Here, the concept was refined and developed on the basis of all the experience gained on the pump test bench in production, and it was adapted to the specific requirements of the development department. It also uses two brake pumps and two sets of variable frequency drive – one for each drive motor and one for each brake pump. However, there was a further requirement to be met. Some large pumps are driven not electrically, but by diesel engines. In these cases, it was hoped that as much of the energy used as possible could be recovered, without integrating an extra variable frequency drive in the system. The solution? Coupling the two variable frequency drives.

This may sound simple, but it cannot be done using standard variable frequency drives and it proved to be a challenge for the Vogelsang supplier. The supplier solved the problem with two special variable frequency drives, each with a maximum of 90 kW, which can now be coupled to recover up to 150 kW. *"The new pump test bench has opened up several new possibilities for us,"* says Paul Krampe. Among other features, the counter-pressure provided by a brake pump can be adjusted much better than it can with throttle valves. This enables more precise results. Thanks to the closed circuit, it is possible to adjust the input and output



"Having this many new testing variants while simultaneously being able to recover so much energy is almost more than we hoped for!"

Paul Krampe, Head of Research and Development at Vogelsang

pressures separately for the pump being tested, in both the negative and positive pressure ranges. And it is possible to generate pressure to test bypass valves, for example, or run characteristic curves. *"Having this many new testing variants while simultaneously being able to recover so much energy is almost more than we hoped for,"* enthuses Paul Krampe, summing up this part of the test bench.

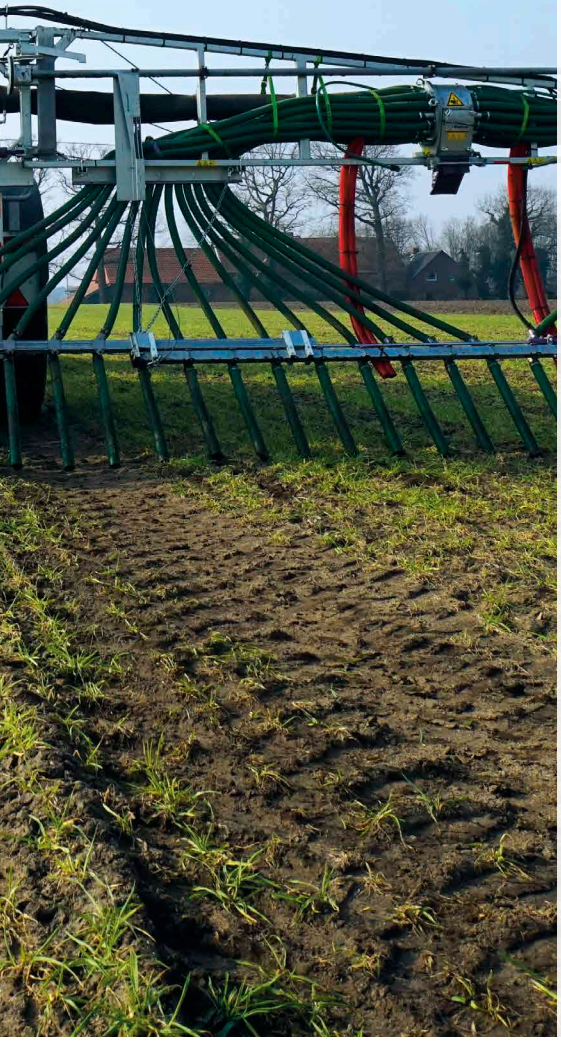
Greater energy savings thanks to mechanical coupling

Hugo Vogelsang came up with one more trick for the long-term tests. *"The best long-term tests are the ones you carry out together with your customer under real conditions. This is the most sensible way to use the energy consumed,"* according to Hugo Vogelsang. But this is not always possible, which is why tests like these are also performed on the test bench in the development department. To make the most of the energy used here, the simple solution is to test two pumps at the same time – with one as the pump and the other as the generator. Here, the pump and the generator are directly coupled mechanically and the generator transfers the energy directly back to the pump by mechanical means. There are no conversion losses here. Compared to testing two pumps individually, this requires up to 70 percent less energy.

Time and again, specialist knowledge, an investigative spirit and logical reasoning at Vogelsang result in solutions that seem simple in hindsight. And these admirable entrepreneurial virtues have proven to also benefit people and the environment, playing a part in preserving the ecological equilibrium while securing this family-owned, medium-sized company in its position in a globalized market. ■

The Vogelsang dribble bar system excels with precise spreading of liquid manure under the plants.





THE CLOCK IS TICKING

Converting distribution technology for compliance with fertilizer regulations, and the advantages of Vogelsang dribble bar systems

In less than two years, Germany's new fertilizer regulations will come into force. From 2020 onward, liquid manure will need to be applied in strips either at soil level or directly into the ground. For both grains and row crops, growers are being confronted with new requirements for the spreading of organic fertilizer. Farmers are having to adjust to stricter specifications, by reorganizing their fertilizer management. Naturally, we at Vogelsang are responding to this shift in thinking. To assist farmers and machinery syndicates in meeting the requirements of the law without neglecting their own interests, we continue to refine the precision and cost-effectiveness of our spreading technology.

Dribble bar systems can be used to ensure that fertilizer is applied in accordance with the needs of the plants. The nutrients are distributed evenly across the surface of the field, without loss. As a positive side effect, local residents are less likely to complain about unpleasant odors, as the fertilizer is applied at soil level. ▸

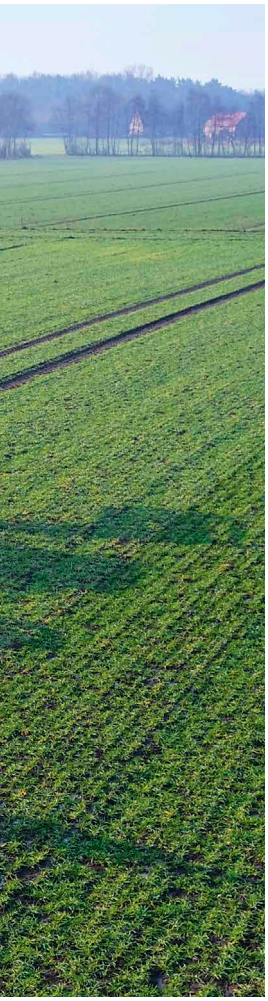


Legally compliant fertilizer application with the Vogelsang SwingUp dribble bar system: precise, economical, retrofittable

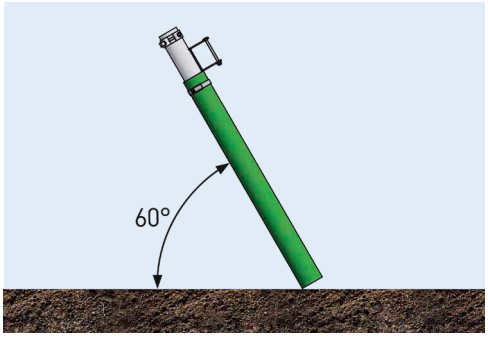
The quality of Vogelsang's dribble bar technology has been improved on the basis of many years of practical experience – and the technology undergoes continuous enhancement. The features we've refined include guidance of the linkage, the working width, the subdivision of the manure flow, the device's suitability for use on slopes, operational reliability, ease of retrofitting and much more. Due to the relatively small size of the individual areas to be fertilized in Germany, tank trailers continue to dominate in fertilizer spreading, especially in livestock farming regions. These trailers handle both transportation of the manure tank to the field and the spreading of the manure on the field. To maximize cost-effectiveness, the tanks have been getting steadily bigger in recent years. So that the trailers can still comply with the constraints of traffic regulations, the weight of the spreading technology has to be as low as possible. This is easy enough to achieve with splash plates, goosenecks, and so on. But this is where the new laws are forcing changes to be made. And once again, the lower weight of the dribble bar system gives it an advantage over other systems, such as slot injectors or fertilizer cultivators.

Farms with a high proportion of cropland are especially likely to prefer the dribble bar. The winning arguments for using the dribble bar system are its working width and distribution accuracy, and the way it deposits the nutrients exactly where the plants need them. A sturdy framework, which is durable yet low in weight, allows spreading widths up to 36 meters. The widths available allow the tramlines of the crop protection sprayers to be used, so there is no need to create additional tramlines.

For even distribution of the liquid manure, you require a precision distributor together with carefully engineered hose guidance. Vogelsang's high-performance precision distributors ensure precise supply of the fertilizing nutrients to the various spreader systems. Moreover, with Vogelsang dribble bar systems, the hose lengths are all virtually the same, so



The winning arguments for using the dribble bar system are its working width and distribution accuracy, and the way it deposits the nutrients exactly where the plants need them.



▲ The correct working position: when used properly, extra-rigid dribble hose ends separate the crops and spread the liquid manure directly onto the soil.

Watch the video here:
vogelsang.info/int/dribblebar-video

the liquid manure reaches the ground almost simultaneously across the entire working width right from the start, and the flow of fertilizer is always constant.

Modern spreading technology applies the liquid fertilizer as close as possible to the soil. Our dribble bar systems are also capable of use even in difficult weather conditions, such as wind. The rigid end hoses, with their set uniform line spacing, part the plants and deposit the liquid manure in an environmentally friendly manner close to the soil under the plants, both for early application in spring and for late application shortly before the crops sprout. This reduces the contamination of the plants and allows use at a later time in the plant life cycle, both on crops and on pastureland. However, an even more important benefit is that this allows the nutrients to be made available to the plants at the best possible time, to boost plant growth and tillering. This allows farmers to cut down on expensive inorganic fertilizer, making the liquid manure even more valuable in purely economic terms. ■

This is another reason why we at Vogelsang like to recommend the dribble bar method, because we keep the cost as well as agricultural aspects in mind. This is especially true for farmers who purchase their own equipment rather than employing contractors. Liquid manure distribution with a dribble bar system brings substantial advantages for crop cultivation. Customers who have been using our linkages for a long time are absolutely convinced of that. This is also because the dribble bar system operates with significantly less nutrient loss, so it makes sense economically as well as environmentally. Even with the latest changes to Germany's fertilizer regulations, dribble bar systems will unquestionably remain a technology that is bound to impress in the field.

Customer testimonials

"We have been using the Vogelsang dribble bar systems for 15 years. There's no doubt about their stamina and long life. Our experience with Vogelsang's after-sales service, such as the supply of spare parts, has been excellent. Our clients value the precise distribution of the manure and the application at soil level. The 15 m working width of the SwingUp dribble bar system allows us to use the tramlines that are already there. With the dribble bar system, we're able to go into action fast for our clients. We don't need any additional transportation vehicles for the 2–3 km average distance to the field. Thanks to the weight of the distribution technology, the manure can be transported on the spreader vehicle."

Contractor Dirk Biemann from Essen/Oldenburg

"The 30 m dribble bar system is perfectly suited to our requirements. We can use the existing tramlines and guarantee even distribution of the liquid manure for our customers. The low weight of the distributor means the cargo capacity of the tank is not restricted."

Adrian Beverborg from contractor Schillmöller, Bakum

Easy to maintain

Quick parts replacement



Compact

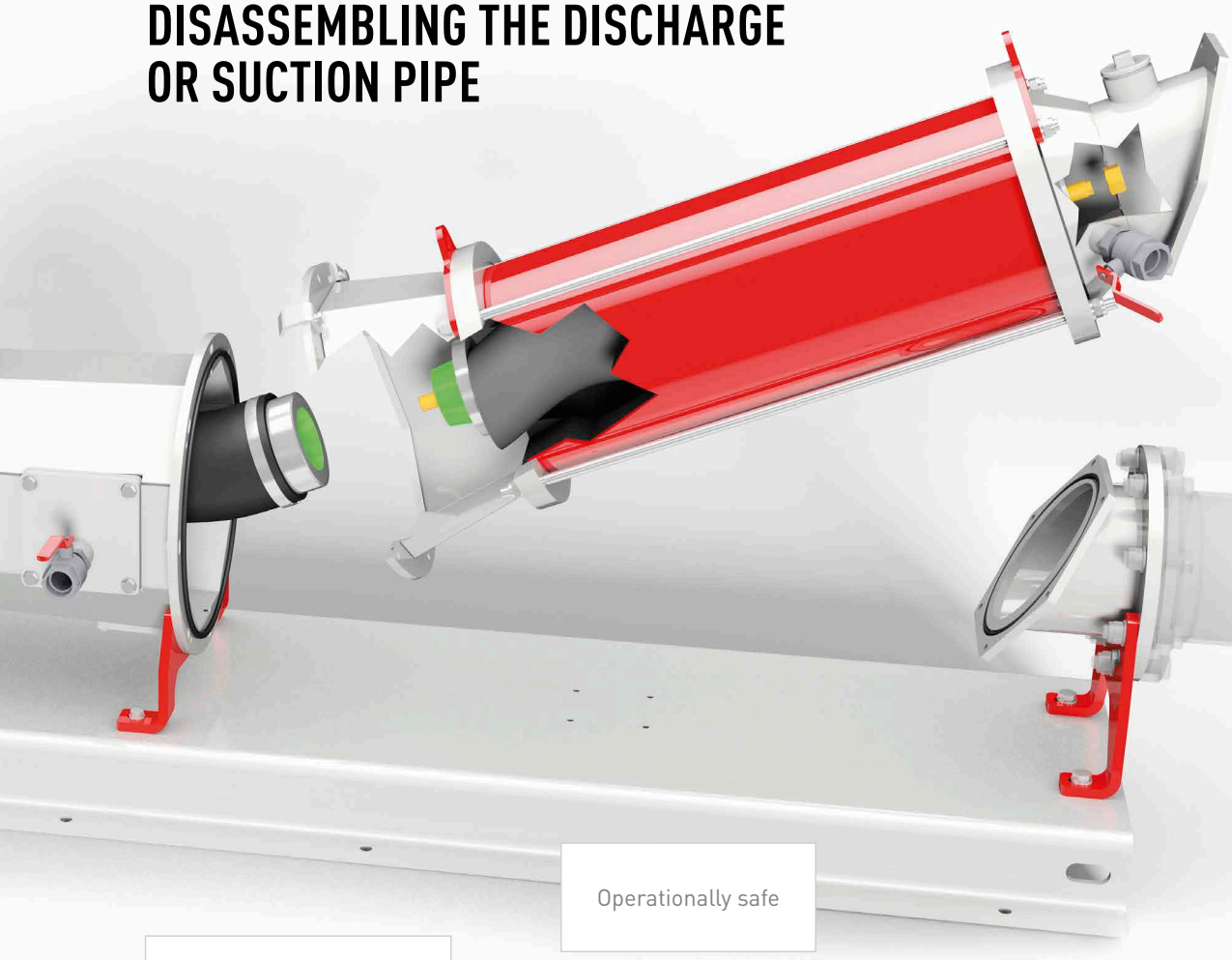
THE SERVICE STAR

The progressive cavity pumps of the CC series from Vogelsang. Easier, quicker, more efficient.

In 1970, Helmut Vogelsang revolutionized the pump market by inventing a rotary lobe pump with elastomeric coating on the conveying elements. In the agricultural sector, the wastewater segment, in industry and in biogas plants, this conveying technology – known all around the world simply as the "Vogelsang pump" – successfully fought off competition from the ubiquitous progressive cavity pump in every field. In the mid-1990s, the company also managed to speed up the process of changing spare parts: The QuickService concept made it possible to replace all the key components on the spot, without dismounting the pump, in less than half the time required previously.

At the end of 2014, Vogelsang surprised the specialist world yet again with an apparently contradictory product: a completely innovative, incomparably easy to maintain progressive cavity pump. The reason? Changing conditions in biogas production resulted directly in new demands and requirements from plant operators regarding the pump technology. However, established providers were only taking some of these changes into account, and reluctantly. As an experienced partner to the biogas sector, Vogelsang saw this as a call to action.

SERVICING WITHOUT DISASSEMBLING THE DISCHARGE OR SUCTION PIPE



Cost-effective

Operationally safe

Sturdy & wear-resistant

Long-lasting

OVERVIEW OF THE CHARACTERISTICS AND ADVANTAGES OF CC PROGRESSIVE CAVITY PUMPS

Specifically developed to pump highly viscous and abrasive media

- Generously dimensioned Cardan shaft
- Robust protective sleeve to protect the Cardan shaft
- Rotor and/or stator can be changed without disassembling the protective sleeve
- Large suction housing with continuous free passage
- Suitable for delivery rates of up to 300 m^3/h

Fast and easy servicing

- Stator/rotor element swings out
- Stator and rotor can be replaced as a unit or individually
- Sealing can be changed without opening the pump
- Minimum space requirements for service work

NEW CUSTOMER REQUIREMENTS LED OUR EXPERTS TO FIRST THINKING ABOUT DEVELOPING OUR OWN PROGRESSIVE CAVITY PUMP.





Following its successful implementation in the agricultural sector, it was the many positive characteristics and advantages of the rotary lobe pump that caused the "Vogelsang pump" to be discovered by new users in other areas, such as wastewater technology, industry and biogas technology.

Developments in the German biogas sector resulted in ever-more viscous and therefore challenging and problematic suspensions in the digesters. Due to the addition of high dry matter content and fibrous solid matter, such as dung or grass silage, some pump types were increasingly reaching their limits – particularly as the suspensions also contain high levels of abrasive components and foreign matter. For this reason, other pumps seemed like a possible solution under certain circumstances, especially the progressive cavity pump, given that the conveying elements boast long running times in other areas. However, when they visited customers on-site, our biogas experts realized that there were no progressive cavity pumps available that were specifically adapted to the precise requirements and needs of biogas plants. Even if the conveying elements could guarantee a satisfactory operational time, users were frequently unsatisfied with the overall performance in everyday operations. So our biogas experts started thinking about developing our own progressive cavity pump. The final decision was not taken lightly. A Vogelsang progressive cavity pump would have to meet both the company's own quality standards and the specific requirements of applications in biogas plants. The experts soon began to doubt whether a cost-effective solution could be found for such a familiar and long-established concept as the progressive cavity pump. After all, since the patent was first registered in 1931, numerous companies had specialized in precisely these pumps. On the other hand, Vogelsang itself had played a major role in further developing and improving the rotary lobe pump concept with the IQ series, adding many useful details and making service and maintenance work and handling considerably easier.

So the experts began the necessary analyses as to exactly which characteristics of the progressive cavity pump convince customers to choose this pump, and which characteristics specifically put them off? Which improvements are users looking for, especially in the biogas sector? In conversations, customers would time and again draw attention to the complexity of changing parts. This took up a lot of space and time and very little had changed over the years when it came to ease of maintenance. Even newly launched product concepts inspired little enthusiasm among biogas plant



Biogas plant operators in particular appreciate the progressive cavity pump of the CC series.

operators, who saw no progress in the situation. In the autumn of 2014, these circumstances led progressive cavity pump experts to demand in print: *"Progressive cavity pumps have to become easier to maintain!"* Users also frequently complained about clogging in the suction housing and insufficiently sturdy Cardan shafts or coupling rods for transferring the motor's drive power to the rotor.

WHAT OPERATORS WANT: THE QUICKSERVICE PROGRESSIVE CAVITY PUMP

In discussions, operators and plant employees frequently referred to the rotary lobe pump or the RotaCut from Vogelsang and asked why we didn't build a progressive cavity pump in a similar way. And so the development department at Vogelsang set itself precisely this challenge. Numerous ideas and some very complicated designs were devised and then discarded again. Other ideas, such as the angled flange on the discharge side, were instant hits. But one thing struck the development staff as strange: If such an uncomplicated design could so decisively simplify servicing and maintenance, why had none of the specialists thought of it before? Were they maybe missing something?

Meanwhile, the advantages were convincing. Unlike in conventional progressive cavity pumps, it was no longer necessary to dismount parts of the discharge-side pipe, thanks to the new design. This not only simplifies the pipeline construction, it also means less space is needed for servicing and maintenance work. But far more importantly, the rotor and stator pumping elements can easily be removed and replaced as a single unit. The pump itself can be put back into operation while the replaced unit is reconditioned. This is an impressive advantage in systems where pumps are not kept redundantly in reserve but where long standstills are unacceptable. And the concept doesn't only apply to small, manageable pumps.



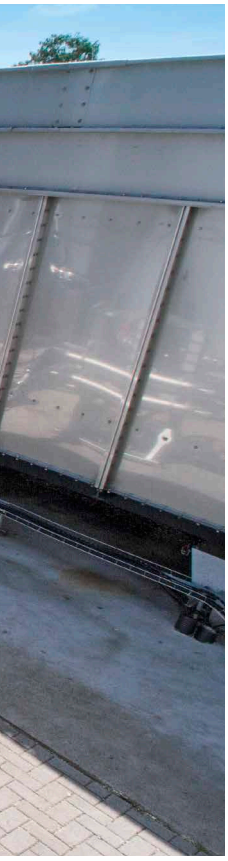
It didn't take long for the specialists in the development department to realize that replacing parts would be even easier and, above all, quicker if the connection between the drive and rotor could be detached from the stator output. Thanks to the innovative construction, this connection is now easily accessible once the rotor/stator unit is swung out. In addition to standard mechanical engineering solutions, such as a multi-tooth or feather key connection, it soon occurred to the engineers to look into a friction-locked cone joint. They were familiar with the concept from other projects, where it had proven useful. The key advantage is that the drive shaft and the rotor do not need to be positioned precisely to one another. In addition, the connection is self-centering, thanks to the taper. It can simply be tensioned or released using a threaded rod via the through bore in the rotor. With this connection, there is no need for laborious removal of small pins in a tight suction housing or other complicated tasks.

No need to disconnect the protective sleeve from the Cardan shaft

And this design has another advantage: It is also possible to fulfill the customer's wish for a well-protected and long-lasting Cardan shaft. Detailed studies have shown that robust Cardan joint shafts are also a suitable means of transferring forces in challenging applications, provided they are protected reliably against the contaminated medium. However, if this protection has to be dismounted every time you take out the rotor, there is an increased risk that it will be incorrectly reinstalled, causing contamination to reach the Cardan shaft. A narrow suction housing also means that the protection is rubbed off. With a friction-locked cone joint, there is no need to dismount the protective sleeve, either when changing the rotor or during a sealing change. Furthermore, the engineers designed a generous suction housing. The idea was that this would prevent rubbing against the protective sleeve, as well as significantly reducing the risk of clogging in the suction housing. And tests proved they were fully justified in their assumptions.

Progressive cavity pump of CC series: a new kind of sealing change

The developers also envisaged the connection between the motor and Cardan shaft as a friction-locked cone joint. The pump is driven by a parallel shaft-geared motor with a hollow shaft. This may sound complicated and elaborate, but in practice it makes life easier for users. Thanks to this design, the Cardan





▲ The former DLG President Carl-Albrecht Bartmer, Head of Development at Vogelsang, Dipl.-Ing. Paul Krampe and the former Parliamentary State Secretary Peter Bleser at the presentation of the Innovation Award 2014

◀ CC66 as the main pump in a liquid feeding system with intermediary disintegration

shaft or even the entire rotating unit can be dismounted in one piece. And more importantly for practical purposes, the shaft seal can be replaced from the outside without opening the pump.

Award for excellent work

The developers' painstaking work and perseverance with the development was amply rewarded. The new pump proved itself superlatively in tests on its dedicated test bench and in the field. In May 2014, the patent was registered. That same year, the new design from Vogelsang won over the jury of an innovation competition. As part of EnergyDecentral 2014, the unique concept of the CC series was awarded the silver medal.

The market had a far more important reward in store: The new concept inspired strong interest from customers, especially in the biogas sector, for which it had been developed. Established competitors on the market soon followed with similar concepts. However, thanks to its patent protection, the original from Vogelsang remains unsurpassed. And to ensure that it stays that way, the CC series is being constantly developed further, as you would expect from Vogelsang. Today, Vogelsang offers single-stage and two-stage geometries in four series with volume flows of up to 300 m^3/h.

The most interesting thing about the CC series, however, is not the large range of different models, it's the fact that Vogelsang developed it itself. Because the entire construction is made in-house, it is also possible to combine pumps and cutters to create compact system solutions. These include the CC-Cut, the direct combination of a CC series progressive cavity pump and a RotaCut to form an exceptionally compact pump system. Or the PreMix liquid feeding system for biogas plants. In the PreMix, a CC series progressive cavity pump is combined with a RotaCut RCX and a flange for connection to a screw conveyor for solid matter. In this way, the PreMix brings together four steps in a single compact system, mashing different substrates with a liquid suspension to create a homogeneous suspension, while simultaneously chopping up and treating the suspension. Any heavy material in the suspension is separated out right at the beginning. Biogas plant operators who ferment a wide variety of different substrates are particularly impressed by the PreMix. Variants of the RedUnit are also based on a progressive cavity pump from the CC series. Here the progressive cavity pump is combined with an XRipper twin-shaft shredder and/or a RotaCut, which makes it possible to turn solid matter into a pumpable medium in the tightest of spaces.

THE ORIGINAL FROM VOGELSANG REMAINS UNSURPASSED. TODAY, VOGELSANG OFFERS SINGLE-STAGE AND TWO-STAGE GEOMETRIES IN FOUR SERIES WITH VOLUME FLOWS OF UP TO 300 M^3/H.

There are few manufacturers who can boast such wide-ranging knowledge and experience of the individual components and their possible combinations, while also being in a position to offer the corresponding control technology. And so it is these combined products that are opening up new applications and markets to Vogelsang, ensuring the company's position at the front of the pack. In upcoming issues of THINK RED! we will be presenting some exciting application examples. ■



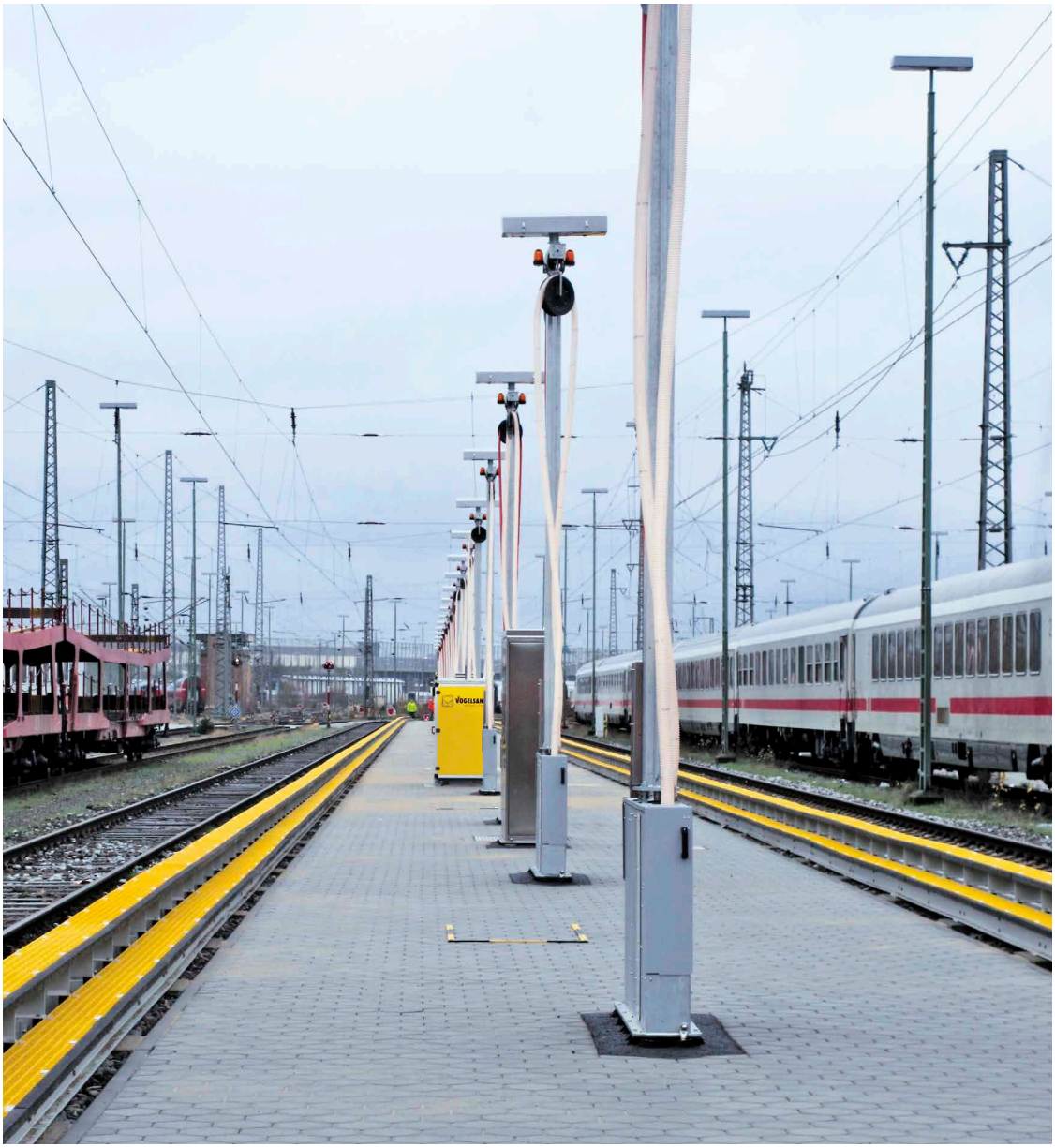
For its new system components, DB Netz AG had very specific requirements, including user-friendliness. Vogelsang's comprehensive bid of 75 systems overall won over against competitors in various calls for tenders.

PERFECT TIMING

The railway depot in Hamburg-Langenfelde is setting itself up for optimal maintenance and repair of the latest generation of ICE trains

The railway depot in Hamburg is upgrading for Deutsche Bahn's biggest fleet of trains to date. *"Hamburg-Langenfelde will be one of the central home depots for the ICE 4 – the latest generation of ICEs. This will require construction work in many areas, such as increasing the size of the wagon shed,"* explains Tino Behn, Project Manager at DB Netz AG. The certified engineer is in charge of the system infrastructure expansion at the Hamburg-Langenfelde rail depot.



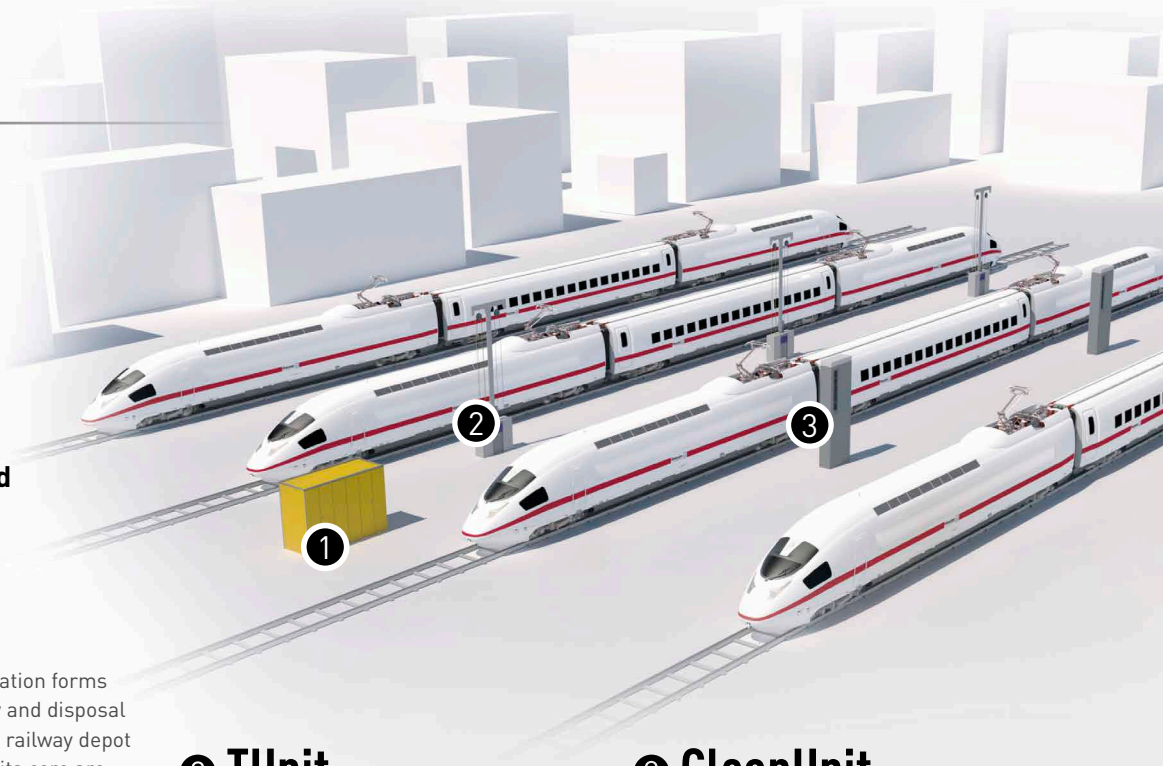


Due to construction space requirements at the site, the equipment for drinking water supply and wastewater disposal for trains in Hamburg-Langenfelde had to be moved outdoors.

DB Netz AG has been continuously expanding its systems for the cleaning of train interiors and the disposal and supply of water on trains since 2014. Due to the new flyover construction on the A7 freeway, which affects the northeastern section of the railway depot, maintenance capacities have been lost over the past few years. Similarly the construction measures at the railway depot due to the upgrading of the ICE 4 have restricted the use of existing maintenance facilities. Mr. Behn explains: *"As a result, capacity indoors is no longer sufficient. The supply of water to trains had to be moved outdoors."*

Foundation consoles by Vogelsang speed up projects considerably

In extending its maintenance facilities, the company is safeguarding against possible bottlenecks at the depot. DB Netz AG therefore issued a call for tenders for new system components, which contained very specific requirements. The pump and supply/disposal units offered needed to be easy to operate to ensure maintenance and cleaning work can be carried out with the utmost efficiency and precision. To speed up installation, DB Netz AG also made ready-made construction elements a prerequisite in its call for tenders for the project. These ready-made construction parts were to weigh no more than 300 kilograms so they could be



Vogelsang system components installed at the railway depot

❶ VacUnit

The central vacuum station

The VacUnit vacuum pump station forms the central element of supply and disposal solutions by Vogelsang at the railway depot in Hamburg-Langenfelde. At its core are the required pump units in a redundant design and the corresponding central control system. A vacuum is generated and wastewater pumped at Hamburg-Langenfelde depot in three VacUnits, each of which uses two rotary lobe pumps of the VX series. Their redundant design ensures a high level of availability throughout the system. These positive displacement pumps are self-priming and designed to deliver viscous media. At the same time, they are resistant to foreign bodies and disruptive matter and easy to maintain. Directly connected to the sewage system, the VacUnits pump and dispose of wastewater efficiently in one single step.

❷ TUnit

Supply and disposal system on the platform

The TUnits are installed on the platforms in the depot as integrated supply and disposal stations and connected to the central pump station (VacUnit). The network-station T-systems enable direct access to extraction and supply hoses and therefore rapid disposal of wastewater from the WC collection tank and supply of drinking water. The systems have a compact design and an automatic hose retraction device, as well as other user-friendly features such as an integrated cut-off mechanism.

❸ CleanUnit

Professional cleaning station

The additionally installed media cabinets for cleaning, the Vogelsang CleanUnits, enable professional cleaning of train interiors by the personnel. Besides cleaning agents and equipment, the CleanUnits also provide cold and hot water as well as an environmentally friendly way of disposing of gray water. The compact CleanUnits, including all tools required for thorough cleaning of the train interiors, are available in just one location. This reduces the required time and legwork, enabling the trains to be cleaned as quickly as possible.

transported and loaded on the tracks easily by the special construction site vehicles.

Vogelsang emerged triumphant from several tender processes thanks to its comprehensive range of solutions, which comprises a total of 75 systems: CleanUnits (cleaner cabinets) for the cleaning of train interiors, central VacUnits (vacuum pump stations) and TUnits for the filling of drinking water and the disposal of wastewater from trains.

Out of the 75 systems, 35 were equipped with foundation consoles. Lightweight ready-made elements by Vogelsang and specially designed for the rail sector, foundation consoles contain all the required connections, pipes and cable conduits. As Mr. Behn explains: *"This has made installation of systems much simpler and reduced the time required for the construction project significantly."* For underground construction work such as installation of lines for the electricity supply, drinking water pipes and other construction measures that form part of the preliminary performance could be carried out hand in hand with the subsequent installation of the foundation consoles and installation of the systems. According to Mr. Behn, the financial impact was equally positive: *"Overall project costs were reduced due to the straightforwardness of the procedure."*

> *"Overall project costs were reduced due to the straightforwardness of the procedure."*
>
> **Tino Behn, Project Manager at DB Netz AG**



Project time reduced by a whole year

Unlike many projects involving large numbers of participants, delays to the schedule were avoided – quite the opposite in fact. When conceptualization and planning of the project began at the start of 2016, completion by the end of 2018 was envisaged by the responsible managers. The newly configured system for cleaning interiors as well as drinking water supply and wastewater disposal could be handed over to railway depot operators a whole year earlier than planned, in December 2017. The experts at Vogelsang also played a considerable part in this. Since then operation of the solutions has been successfully commenced, enabling efficient management of capacities by Deutsche Bahn. When required for peak operation, up to 30 staff can use the maintenance and servicing systems at the same time.

CENTRAL MONITORING AND REMOTE MAINTENANCE

The online system developed by Vogelsang for the monitoring and control of system components, VEBSys, has also been set up in Hamburg-Langenfelde. The web-based monitoring app provides operating data for all the system components connected to the program regardless of their location, thus allowing engineers to reliably monitor which components are ready for operation. If a malfunction is detected, it can often be resolved by means of remote maintenance. On-site repairs – and the time and costs involved due to travel times and personnel requirements – are thus rarely required.

The local control units (LCUs) are connected to the VEBSys online system. The LCUs can be used to control the valves in the supply and disposal

The project in numbers

Start of project: **2015**

End of project: **2017**

Project costs: **around €1.7 million**



The combination of web-based checks and control modules on-site ensures reliable operation of the systems.

equipment, for example. Automatic interlocking in the valves and other fixtures prevents the drinking water from being contaminated with wastewater due to operator error, for example.

The combination of web-based inspections and control modules on-site enables comprehensive equipment quality control for operators in Hamburg and ensures that the systems run reliably and without interruption. This is essential to ensuring that the trains can be maintained in the time windows provided and keeping the logistics in the rail depot running smoothly. ■

Total number of installed systems: **75**
(3 VacUnits, 56 TUnits, 16 CleanUnits)

Project partner: **DB Netz AG Bahnbau Nord**





HIGHER YIELD

DUE TO SOPHISTICATED MANUFACTURING PROCESS

Processes have been optimized at Juncà Gelatines in Spain due to installation of a BioCut.

Animal gelatin is used as an ingredient in deserts and sweet foodstuffs in the food industry as well as in many other products such as pies, sliced meats and even as an ingredient in the processing of juices, wines and dairy products. As well as these applications in the food industry, gelatin is also used as an ingredient in pharmaceutical and cosmetic products and in animal feed.

Its properties and numerous possible applications as well as its comparatively low costs make animal gelatin a highly versatile product. To maintain competitive prices, gelatin manufacturers require production on a large scale and, above all, have to maximize their production.

For Juncà Gelatines this last point in particular was key when it came to the use of a maceration and pump system by Vogelsang, BioCut. Juncà Gelatines is a family-run company that has its headquarters in Banyoles in northeast Spain, approx. 100 kilometers from Barcelona and 50 kilometers from the French border. Annually Juncà manufactures around 5,000 tons of gelatin, making it one of Spain's leading companies for the gelatin production. To integrate a Vogelsang BioCut into the final phase of the extraction of collagen, the company made a decision two years ago to macerate the partly preboiled pig rind in order to optimize yield.

"The most important benefit is the result improvement: using the BioCut we are able to extract part of the collagen that had previously remained in the skin."

Raquel Mir, Environmental Officer at the company





The end product after the gelatin production is dried and grinded.



MAXIMUM YIELD AND ENERGY EFFICIENCY YET LOW MAINTENANCE REQUIREMENTS

The BioCut is a combination of a macerator and a rotary lobe pump, installed on a platform. The BioCut also includes an electronic control unit for simple operation and control.

Prior to the BioCut, Juncà Gelatines used a centrifugal pump, which merely conveyed the boiled pig rind. After installation of the BioCut, additional yield could be attained due to its dual functionality. As well as conveying the skin, the unit also shreds it with its wet macerator, thereby increasing the yield from the overall process.

Raquel Mir, Environmental Officer at the company, relates first-hand how the BioCut has led to improvements: "*The most important benefit is the yield improvement. Using the BioCut, we are able to extract some of the collagen that had previously remained in the skin and thereby increase overall production yield considerably. Use of the machine has also improved conveyance of the skin since the rotary lobe pump integrated in the BioCut transports the product more gently. In this way we have obtained a better quality product, and have reduced processing times. In addition, we have been able to reduce our electricity consumption.*"

The RotaCut macerator integrated in the pump shreds fibrous and coarse media using knives pressed against a fixed cutting screen. This continuous pressure is exerted via a hydraulic system, enabling a uniform and continuous cut. At the same time, the operating principle prevents the blades loosening, which would cause production delays to carry out maintenance work.





Tests are made in the laboratory to analyze the quality and other features of the gelatin.

In the case of Juncà Gelatines the RotaCut macerates the skin and attains more collagen per kilogram of raw material compared to the previous system. Any foreign matter present is discarded thanks to the integrated foreign material separator.

Its compact engineering and innovative design enables ongoing operation, while any required repair work can be carried out with ease; by simply opening a lid, access is provided to the knives of the macerator and the pumping chamber.

Investment in innovation for a higher yield

One single system with numerous benefits for the optimization of yield and to guarantee a premium-quality product at the same time. These two improvements make the BioCut a profitable investment for Juncà Gelatines and have proven once again how Vogelsang technology can be relied upon at all times, even in the most demanding of environments. ■

Did you know that ...

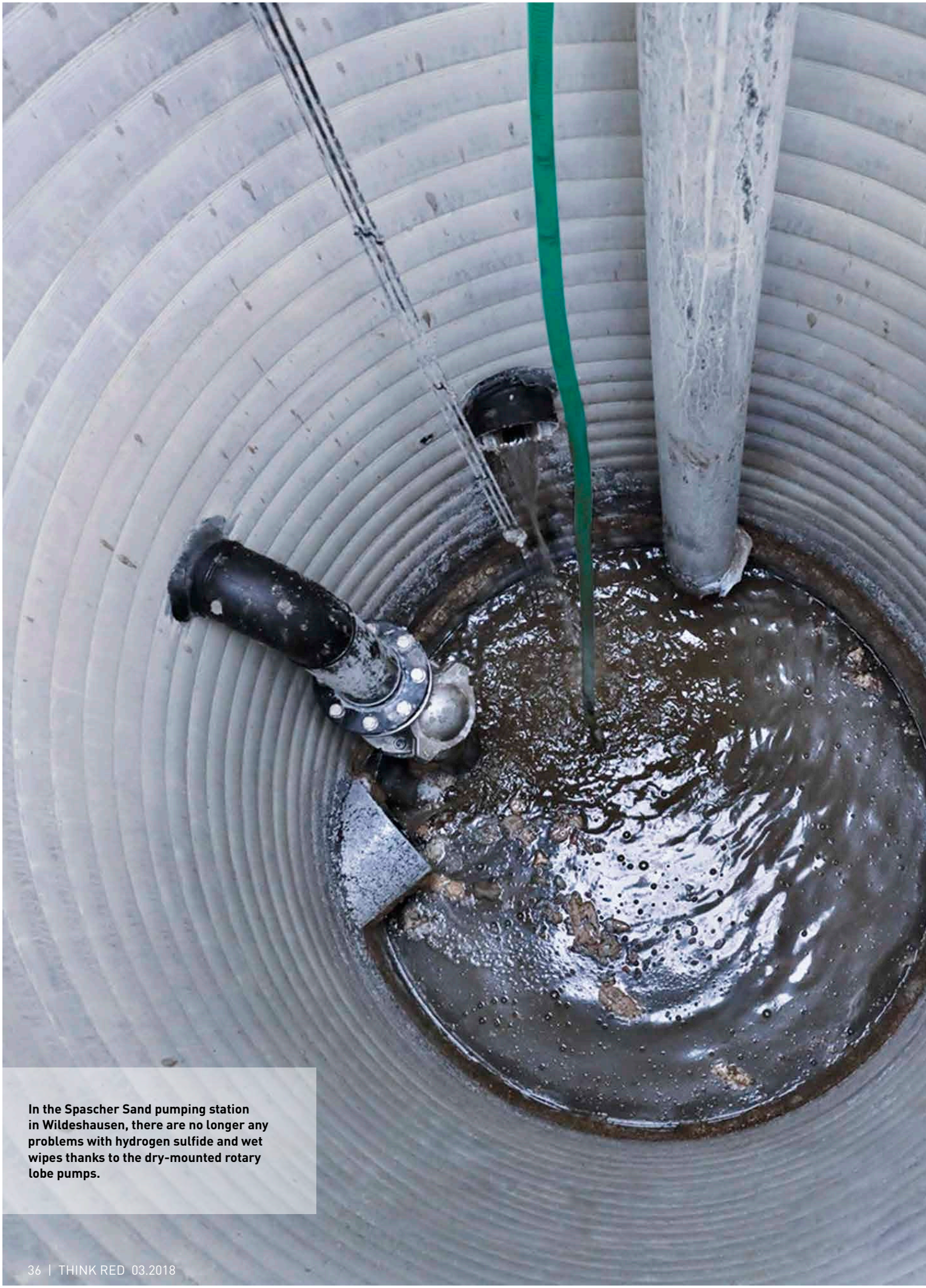
... gelatin is a solid, transparent, colorless substance that is odorless and tasteless and obtained by boiling the bones, tendons and ligaments of animals, more precisely pigs, cows or fish?

... gelatin occurs due to the partial hydrolysis of collagen, the most important protein in animal tissue? Gelatin is rich in protein (84–90 percent) and free of cholesterol, fat, carbohydrates, preservatives and additives.

... gelatin contains a total of 18 amino acids, including 9 of the 10 essential amino acids that need to be consumed regularly as part of a healthy and balanced diet? Thanks to its high content of essential amino acids, gelatin is classified as a foodstuff by the United Nations' Food and Agriculture Organization (FAO).

... manufacturing processes for gelatin at Juncà are almost exclusively based on the processing of pig rind? The process can be subdivided into six subprocesses: preparation of rind, maceration and extraction of collagen, filtering, concentration and drying.





In the Spascher Sand pumping station in Wildeshausen, there are no longer any problems with hydrogen sulfide and wet wipes thanks to the dry-mounted rotary lobe pumps.

WET WIPES? NO TROUBLE!

The problem with the hated sewage blockers practically solved with the help of experience

The town of Wildeshausen, located in the nature reserve of the same name, is surrounded by fields and woods and has recently experienced a strong influx of new inhabitants drawn to its natural setting. To these people, this popular holiday destination is home.

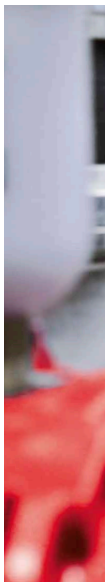
Up until a few years ago, however, problems in the sewer system pumping stations of this county town for the district of Oldenburg in Lower Saxony would often interrupt the tranquility. But when the municipality hired a former wastewater specialist from the potato processing industry, the solution was soon found. He invested in rotary lobe pumps from Vogelsang, which are resistant to foreign matter. Blockages caused by wet wipes are now a rarity.

The sewage treatment plant and sewers in Wildeshausen are operated by the town itself. And very effectively, too: the fees for wastewater, most of which is domestic and commercial, have fallen over the past 25 years from a high of 2.14 euros to today's price of 1.99 euros per cubic meter. The secret of this success is simple, as Wastewater Manager Matthias Schnieder explains: most of the money saved thanks to investment is reinvested. And this pays off for the inhabitants in the long run.

One example of the town's willingness to invest is the modernization of the 15 pumping stations in the municipality's 85-km-long separated sewage system, which are overseen by Mr. Schnieder and his team. These are gradually being renovated and fitted with modern, updated machine technology. One major problem here is the growing number of wet wipes and other cosmetics products in the sewage, which used to frequently lead to clogging of the old pumps. Luckily, thanks to his experience in the food industry, the Wastewater Manager knew immediately which new installations would help: rotary lobe pumps. From his previous working environment, he already knew and appreciated the pumps' performance and – far more importantly – their low susceptibility to blockages when pumping media containing foreign matter.

"The pump is the solution," Matthias Schnieder is convinced, and *"using cutters in the sewer system is the wrong approach."* For him, shredding disruptive matter such as wet wipes first, in order to then carefully filter it out in the sewage treatment plant later, for example with the use of a microplastics filter, is both self-defeating and unnecessary. He solved the clogging problem by using rotary lobe pumps because these can convey sanitary products and textiles without difficulty. Centrifugal pumps tend to wind disruptive matter into braids as thick as a person's arm. So far, Schnieder and his team in Wildeshausen have installed Vogelsang rotary lobe pumps in eight pumping stations. And their success has proven Schnieder right: whereas all it took before was for someone to call out "Goethe Strasse pumping station" and employees would know exactly what to do and where to go, they now have to ask where exactly the pumping station is, so rare have blockage call-outs become.





Goethe Strasse: maintenance and service have become considerably easier thanks to the new pumping station concept.

Goethe Strasse pumping station: weekly maintenance call-outs because of wet wipes

Previously, wet wipes clogged the dry-mounted screw centrifugal impeller pumps of the partially above-ground pumping station almost every week. Clearing the blockage could easily take two employees an hour or more. Especially given that the confined space made the work even harder. In 2017, the station was refitted with two rotary lobe pumps of the VX100-128Q type. Although there were a few "teething difficulties" after the first start-up, as reported by Schnieder, the pumping station has been running without trouble ever since. If it should ever come to any problems, Schnieder's call-out team aren't particularly worried. Thanks to their self-priming design, it was possible to install the two rotary lobe pumps one level higher, where there is noticeably more space available for servicing and maintenance. It is no longer necessary to lower tools and spare parts down a narrow ladder to the pumps.

RELIABLE PUMP TECHNOLOGY FOR HIGH EFFICIENCY

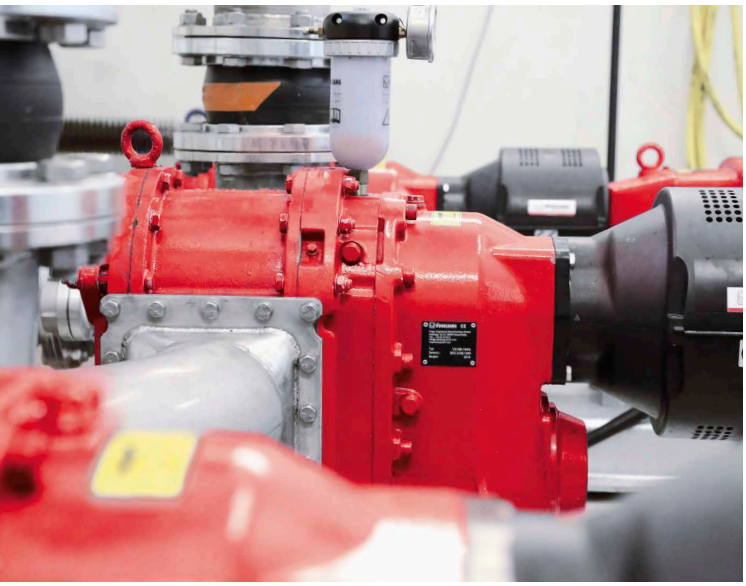
Spascher Sand pumping station: getting to grips with hydrogen sulfide and wet wipes

Of course, when deciding on rotary lobe pumps, Matthias Schnieder was also keeping an eye on energy costs. Weighing up the ratio of electrical efficiency to operational reliability, he also installed rotary lobe pumps when modernizing the Spascher Sand pumping station a year earlier. After all, as he was well aware: *"A single disruption can completely cancel out the energy savings of a highly efficient impeller."* And this is especially true of pumping stations that only run for a few operating hours each day, as is the case with the Spascher Sand station. The pumping station was originally built in 1985 and, 15 years ago, it was fitted with two submersible motor pumps, which were installed directly in the central shaft. This variant involves minimum investment costs, as Schnieder admits, but if you take the specific local circumstances and the life cycle costs into account, he believes dry-mounted rotary lobe pumps are the clear winners.

The pumping station was struggling with hydrogen sulfide. This forms in the 3.5-km-long pressure pipeline, which is only connected to a couple of houses. When the line was built, the area was expected to experience a very different development, including the building of a large hotel, among other things. The plans fell through, leaving an over-dimensioned pipeline behind. As there is too little sewage in the pipe and it stays too long in the channel, the sewage begins to break down. This results in gas that smells of rotten eggs. In turn, further biochemical processes form highly aggressive sulfuric acid. This was having a major impact on the Spascher Sand pumping station: almost half the wall thickness of the six-meter-deep concrete shaft had already been eaten away by corrosion. The acid had also strongly affected the pumps, pipes and fittings.

In addition to malfunctions caused by corrosion damage, Wildeshausen sewage treatment plant employees also had to rectify clogging of the pumps caused by wet wipes at regular intervals. In this case, this often also involved using a vacuum tanker because the completely flooded shaft had to be drained first before the pumps could be rescued. Added to this, for safety reasons relating to the problem with the gas, it was necessary to deploy two men each time.

During the renovations in 2016, a polyethylene prefabricated shaft was inserted into the old concrete shaft and the gap between the old and new shafts was filled with concrete. Apart from a level meter and a check valve, there is no longer anything located in the aggressive environment of the central shaft. The pump technology, essentially consisting of two VX100-128Q rotary lobe pumps, is now located right next to it in a roughly two-meter-deep shaft. Unlike centrifugal pumps, rotary lobe pumps are self-priming, and so even the fact that the shaft didn't have to be sunk as deep helped reduce costs significantly. And employees are happy with the new concept, too. The new shaft is roomier, making service and maintenance work much more hygienic as well as easier. There is no longer any need for a vacuum tanker, and employees no longer





"A single disruption can completely cancel out the energy savings of a highly efficient impeller."

Matthias Schnieder, Wastewater Manager



Landskrone, the largest and most important pumping station in the Wildeshausen sewer system

need to worry about the deadly gas, which remains separate in the central shaft. In any case, employees only seldom come by these days on their routine visual inspections, as malfunctions are now rare and the pumping station is connected to the sewage treatment plant by a dedicated line. All the important operating parameters and data can now be viewed centrally.

Where it all began: Landskrone pumping station

Landskrone is the most important pumping station in the catchment area of the Wildeshausen sewage treatment plant. It pumps wastewater for the entire municipal area east of the Hunte River. Originally built in 1961, in 1976 three dry-mounted vortex impeller pumps with vacuum maintenance were installed. This technology remained in operation until the mid-90s, leading by the end to almost daily trouble and high costs. The reason for this was homegrown: the volume of sewage had increased considerably over time, and small corrosion holes in the suction lines meant that the water was no longer contained by the vacuum system. In addition, there were problems with the wastewater itself, which is a not uncommon further source of frequent malfunctions. To alleviate the situation, the driving speed of the centrifugal pump was almost doubled. Although this significantly increased the capacity, it also led to cavitation damage, especially with the impellers. All in all, the result was regular, expensive and time-consuming repairs running up five-figure costs every year.

After taking up his position in Wildeshausen in 1992, Matthias Schnieder put his positive experience of rotary lobe pumps into practice here for the first time: high capacity with minimal space requirements, self-priming and resistant to dry running and foreign matter – these were just the characteristics that the Landskrone pumping station demanded. And so, in the mid-90s Schnieder himself installed Wildeshausen's first rotary lobe pump for a year-long test phase. After the year passed successfully, the pumping station was remodeled in 1997 and equipped with three Vogelsang rotary lobe pumps. Since then, an average of 220,000 cubic meters of wastewater is pumped each year from here to the sewage treatment plant. Clogging problems have become very rare. *"Among other things, a 15-meter-long hose from a garden irrigation system once stopped one of the three pumps,"* recalls Schnieder, *"but we've never had any problems with wet wipes here."* In 2016, the pumping station was renovated again, even more thoroughly, but on the same basis. Loyal as ever to the rotary lobe pump, the Landskrone pumping station concept was used as the template for other, nearby pumping stations – even though the delivery rates there are conspicuously lower and the smaller VX100-128Q rotary lobe pumps can be used, there are as good as no problems with wet wipes any more in any of the retrofitted pumping stations. ■

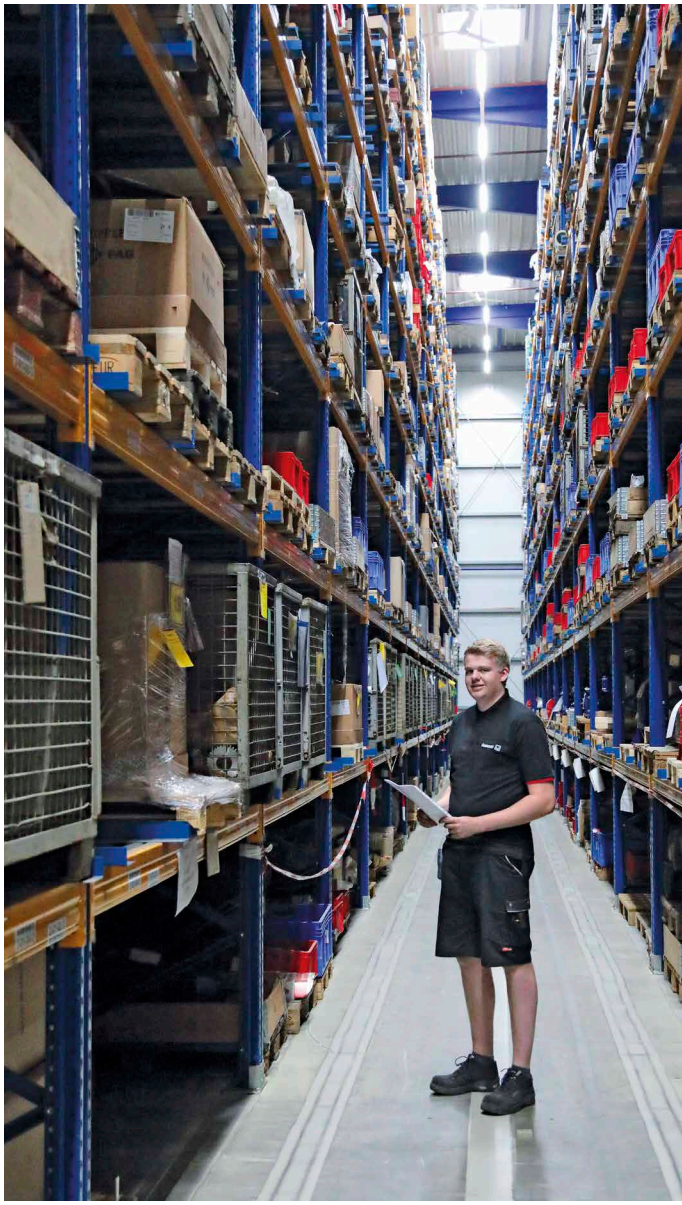




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SERVICE AND ITS VALUE AT VOGELSANG

Germany – a customer service wasteland? Such ideas can long be consigned to history, including for companies from mechanical and plant engineering.



The logistics center of Vogelsang

FOCUS ON CUSTOMER REQUIREMENTS

The industry is currently undergoing restructuring. Where, before the turn of the millennium, the chief focus was on the primary product and its sales, since then the focus has switched to after-sales services. In an interview from 2010 with the newspaper *Produktion*, Dr. Armin Schmiedeberg, a partner at business consultants Bain & Company, recommended back then that the share of sales from services at a well-managed mechanical engineering company should be more than 30 percent.* A survey by VDMA (The Mechanical Engineering Industry Association) from 2017 showed the average share of sales from service measured against total sales to be 19.2 percent for mechanical engineering.** This does not quite live up to Dr. Schmiedeberg's forecast. Other current studies however show that the large machine and plant engineering companies are further expanding their customer services and strengthening their international presence.

The focus here is not on direct sales achieved by the "classical services" however, whether these be man hours or spare parts. As in the consumer goods industry, the metal-working industry has also recognized that good service is a long-term measure that promotes customer loyalty. In particular in cases where a product life cycle of up to 25 years is declared, it is important that customers are not disappointed. To ensure the performance capability and availability of the product across the entire time period, a comprehensive service package ought to be merely a matter of course. Manufacturers then contribute to attaining the maximum possible economic efficiency for their machines, hereby ensuring a good reputation among customers. Companies who do not meet these requirements can expect difficulties on the market. Vogelsang is just as committed to customer requirements in the area of services as it is to product quality however.

"Today's customers are very independent, better informed than ever and highly particular. A personalized service is therefore an important way to set yourself apart from the competition and win the loyalty of your customers," confirms Stefan Krause, Service Director at Vogelsang. He has worked in the area of customer service for more than 30 years and knows what he is talking about. *"Whereas just a few years ago competent telephone support was enough, today a preemptive service and seamless flow of information is increasing in importance. High availability of parts and fast delivery of spare parts are of course also important factors in good quality service."*

* Source: produktion.de *"Service im Maschinenbau: Fallstricke und Chancen,"* by Claus Wilk from July 5, 2010, at 11:19 a.m.

** Source: VDMA viewer from December 21, 2017, on vdma.org *"Fit for Service: Liegt Ihr Umsatz im Service bei knapp 20 Prozent?"*







"Whereas just a few years ago competent telephone support was enough, today a preemptive service and seamless flow of information is increasing in importance."

Stefan Krause, Service Director at Vogelsang

In order to meet for these requirements, Vogelsang is not only investing in modern equipment and technology but also in specialist qualifications for the responsible employees. Advanced training and education is to ensure a high-quality service for the company. This totals around 150 training days and more than 1,200 hours per year overall. Product developers present their latest Vogelsang innovations to the Service Team in person. This creates a greater understanding of the purpose, benefits and design of a product.

In addition, Service staff have rapid and direct access to all product-relevant information, parts lists and 3D drawings thanks to state-of-the-art work and communication equipment. Mr. Krause: *"This is doubtless also a reason why there is little fluctuation in our area and the level of knowledge remains correspondingly high. In addition there is a good team spirit."* Customers profit from a broad internal network and many years of experience as well as a high level of expertise among Vogelsang Service staff. This enables even complex requirements and difficult customer expectations to be met.

Vogelsang Service: Services at a glance

Vogelsang after-sales services cover everything that might help customers get the most out of the performance capability of their machines and plants.

Classic after-sales services

- Installations
- Product training
- Maintenance and repair on-site and in the plant
- Spare parts sales
- Upgrades and retrofits
- Accident damage analyses
- Service hotline including emergency service outside of normal working hours

Further services

- Vogelsang maintenance agreement
- Technical consulting for own repairs
- Consulting on process optimization
- Retrofitting of control technology
- Predictive maintenance/remote maintenance and proactive maintenance and repairs based on measurement and production data

Digital monitoring means we can already know today that a part needs to be replaced tomorrow.







Digitization in the service area: Predictive Maintenance

In particular due to the increasing digitization and networking of processes, technologies and machines, new requirements and tasks are arising that also have an effect on the service team and services portfolio. To keep up with developments in Industry 4.0 from a customer perspective, the development engineers at Vogelsang are also in close exchange with Service to take into account current market requirements in product development. One result of this close collaboration is the Vogelsang control technology, for instance. The Performance Control Unit (PCU) enables intelligent inspection, evaluation, control and networking of individual components. This is the first step towards "Predictive Maintenance," meaning the preemptive repair and maintenance of systems. Digital monitoring means we can already know today that a part needs to be replaced tomorrow. Depending on the degree of networking, the possibilities can extend to machine-controlled ordering of the required spare part. Combined with guaranteed, fast delivery of spare parts, this results in an attractive, future-compatible range of services.

Information: a precious commodity

At the same time, it is important to cater for customers' information needs and enable them to access data and information on demand around the clock. This is a cross-department concern at Vogelsang. Service is also presently considering some conceptual questions: What information do our business partners expect? What data sources are required for this? How do we ensure that all available data is updated daily? What platform is suitable for the provision of information? What IT measures are required to protect data and information provided from unauthorized access? Mr. Krause: *"Though this sounds simple and plausible, on closer inspection it is a path that is not to be underestimated. This is why we have already embarked on it today."* ■



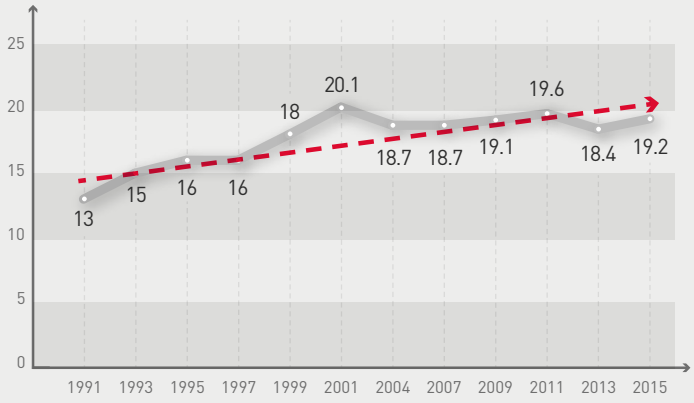


The Vogelsang Service Team in action

Fit for Service: The VDMA check

A study by VDMA and goetzpartners from 2017 on the key factors of a successful service in mechanical engineering and plant construction reveals that best-in-class companies have a share of service sales against total sales that is up to 70 percent higher and significantly higher profitability at the same time. The VDMA association believes that strengthening service business might be the necessary response to the increasing sales and profit pressure resulting from the growing challenges of the market. Retrospectively, this has resulted in the following developments:

Share of service business in total revenue of the German mechanical engineering industry 1991 to 2015



Service share in mechanical engineering sales in percent

Source: VDMA – benchmarks services 1992 to 2016

The mechanical engineering and plant construction industry is wasting much potential when it comes to service business

According to a report by Roland Berger in 2014, traditional services like spare parts sales and maintenance have already lost ground due to the high degree of standardization. That year they still accounted for 42 percent of the sales generated by services, which is why Roland Berger partner Philipp Angehrn recommended a new approach: *"This approach includes, first and foremost, services that contribute to increasing the performance of preinstalled machines and consultation services."* The recommendations were based in particular on upgrades and updates to existing system software and evaluation and analysis tools. Remote monitoring too was recognized as a key growth factor.

Source: Roland Berger report "Evolution of Service" from RB Newsroom article dated January 7, 2014, on presseportal.de



Name: Stefan Krause

Year of birth: 1965

Function: Service Director at Vogelsang

In customer service since: 1985

Professional background: Service engineer, International Sales, Project Manager, Service Director

I especially appreciate at my job: Finding solutions with people and technology

Characterization of the Vogelsang Service Team: Straightforwardness, openness, cordiality, competence

INTERVIEW

PROFESSIONALS IN HEART AND MIND

Stefan Krause has worked in Service since 1985 and learned his trade from scratch. From Service Technician to Service Director, he has occupied numerous posts that have led to him having a sharp eye for customer requirements and a nose for market developments and trends. We spoke to him about customer confidence, complete packages and culture.

THINK RED!: Mr. Krause, quality service alone is never enough to gain the confidence of customers. What else do you and your Service Team do to achieve this?
Stefan Krause: Reliability is the be all and end all. Our customers rightly expect that we deliver to them just what they have ordered and what they even may not have thought of but need for a repair. We are professionals in our hearts and minds. This is how we behave towards the customer too, thereby creating a solid foundation for confidence.

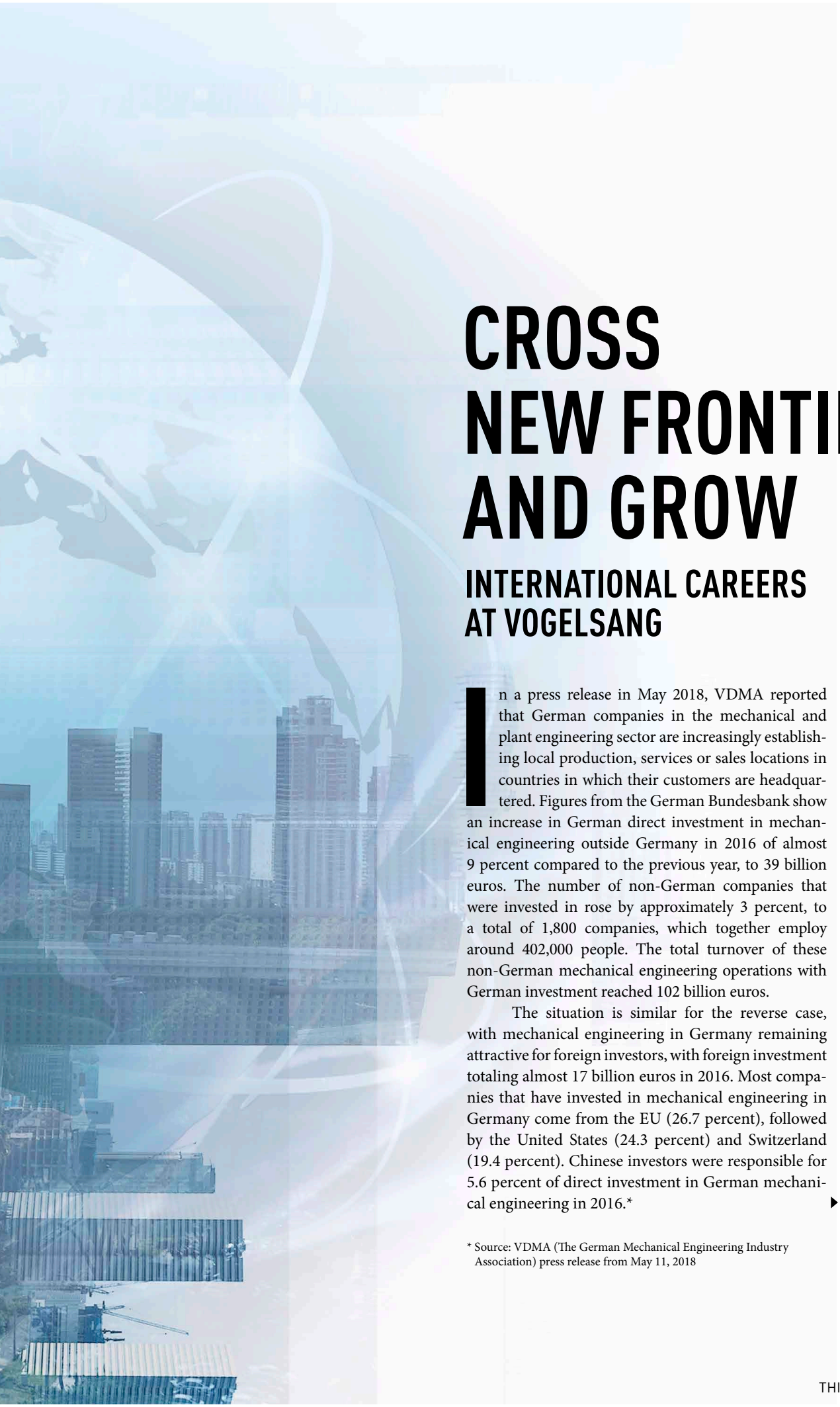
How can you be certain that all important parts are available for a repair?
This is the reason we have developed Service kits. These complete packages contain pre-picked individual parts that are required for certain repairs and maintenance visits. This makes fast repairs easier. In addition, due to our very high level of manufacturing, we are able to deliver spare parts quickly – by the early hours of the next morning via overnight shipping services.

Do you see more room for potential improvement in spare parts availability and logistics?
Yes, we want to achieve parts' availability of more than 95 percent. For this reason, we are constantly planning and performing initiatives to optimize manufacturing and distribution processes even further.

Vogelsang is also growing in other company areas, such as production and administration. What standing does Service enjoy in your company?
Service has always been written large at Vogelsang. It is an area of business that has grown constantly over the past few years and makes an important contribution to total sales. With our team of more than 30 staff at our main branch in Essen/Oldb. and a further six Service centers around Germany, our presence on the domestic market is significant. Worldwide we employ more than 100 Service employees. In addition, each Vogelsang partner has their own spare parts store. The more than 120 product training courses per year in the main plant, at the centers and directly at the customer site are a testimony to the high demand and the ambition of our Service staff. This culture of dedicated staff is an important part of our corporate culture that we live out on a day-to-day basis. ■

"The service area has grown constantly over the last years."





CROSS NEW FRONTIERS AND GROW

INTERNATIONAL CAREERS AT VOGELSANG

In a press release in May 2018, VDMA reported that German companies in the mechanical and plant engineering sector are increasingly establishing local production, services or sales locations in countries in which their customers are headquartered. Figures from the German Bundesbank show an increase in German direct investment in mechanical engineering outside Germany in 2016 of almost 9 percent compared to the previous year, to 39 billion euros. The number of non-German companies that were invested in rose by approximately 3 percent, to a total of 1,800 companies, which together employ around 402,000 people. The total turnover of these non-German mechanical engineering operations with German investment reached 102 billion euros.

The situation is similar for the reverse case, with mechanical engineering in Germany remaining attractive for foreign investors, with foreign investment totaling almost 17 billion euros in 2016. Most companies that have invested in mechanical engineering in Germany come from the EU (26.7 percent), followed by the United States (24.3 percent) and Switzerland (19.4 percent). Chinese investors were responsible for 5.6 percent of direct investment in German mechanical engineering in 2016.*

* Source: VDMA (The German Mechanical Engineering Industry Association) press release from May 11, 2018



MEASURED BY THE NUMBER OF EMPLOYEES, MECHANICAL ENGINEERING IS THE LARGEST SECTOR WITHIN THE METAL AND ELECTRONICS INDUSTRIES.

OVER 900 000 EMPLOYEES IN THE LAST 10 YEARS

There were approximately 1,032,000 people employed in the German mechanical engineering industry in 2017.

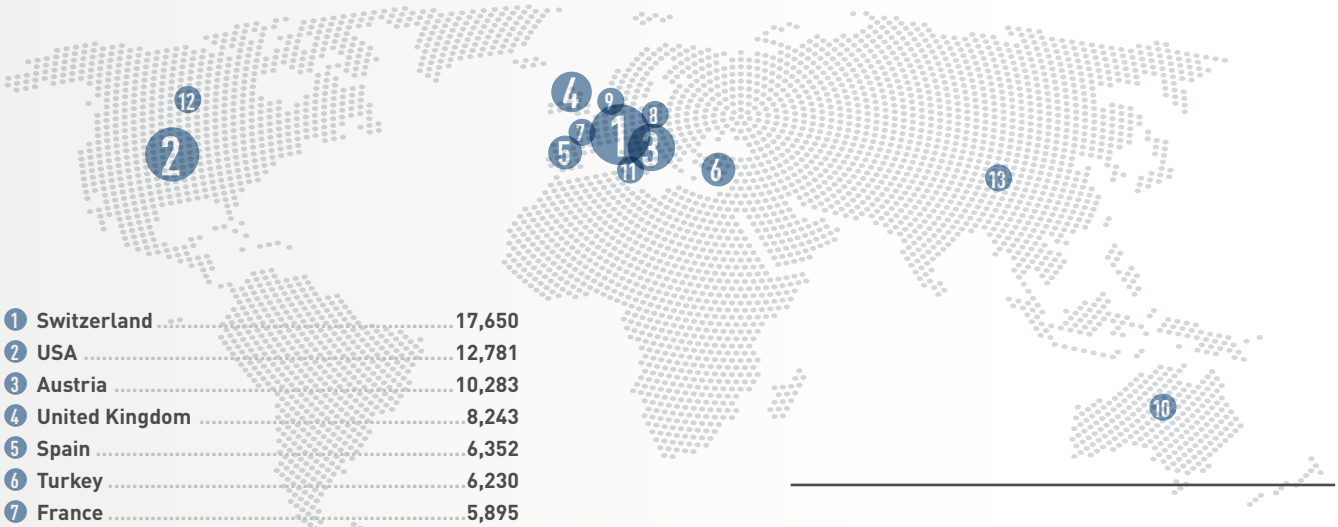
The total turnover of non-German mechanical engineering operations with German investment reached 102 billion euros in 2016.

Given the ever-greater networking of mechanical engineering companies across the globe, it is no wonder that the demand for internationally educated and experienced personnel is increasing. They bring a better sense for foreign customers and cultures with them, and their work is not held back by language barriers. Due to their insights into sectoral trends and developments in other markets, employees coming from abroad are very valuable to a global, networked company such as Vogelsang. German employees and trainees in turn experience a work placement abroad as an opportunity to develop themselves and their skills further on many levels – an additional boost for their career, combined with a "great adventure." Vogelsang supports the interest of its employees in this regard too, and makes it possible for them to undertake this exciting journey.

THE FIRST LEAP ACROSS THE POND

The first Vogelsang employee deployed abroad was Ralf Thölke. The current Head of Sales for the Asia/Middle East/Africa region at the headquarters in Essen/Oldb. undertook some real pioneering work in terms of international careers at Vogelsang at the end of 1999. In order to support the construction of the subsidiary Vogelsang USA Limited as Technical Director, Thölke moved to Cleveland/Ohio for two years. What today sounds like a matter of course represented a great step forward at the time. *"At that time I was working in internal sales in Essen/Oldb. and frequently wrote offers for the US subsidiary. After a certain point however, support from a distance was no longer sufficient. For this reason,*

TOP 10 DESTINATION COUNTRIES FOR GERMAN EMIGRANTS IN 2016



1	Switzerland	17,650
2	USA	12,781
3	Austria	10,283
4	United Kingdom	8,243
5	Spain	6,352
6	Turkey	6,230
7	France	5,895
8	Poland	5,418
9	Netherlands	3,499
10	Australia	3,439
11	Italy	2,457
12	Canada	2,431
13	China	2,379

Source: Statistisches Bundesamt; Wanderungsergebnisse – Übersichtstabellen, 2016

Talent abroad:
A report on German emigrants

According to the study with the above title published by the OECD in 2015, Germany is not only the second-greatest country for immigration within the OECD, it is also one of the main country of origin for emigrants. As shown by the OECD publication, some 3.4 million people born in Germany lived in another OECD country in 2011 – this number corresponds to the population of Berlin. This makes Germans the fifth-largest group of emigrants in the OECD after Mexico and Great Britain, and close behind China and India. Most German emigrants live in the USA (1.1 million), in Great Britain and in Switzerland (270,000 each). France, Italy and Spain are also popular destinations for emigrants. These emigrants are people with a mid to high level of education: 1.4 million have completed their *Abitur* (the German equivalent of a high school diploma) and/or vocational training, and a further 1.2 million have completed a degree course. Study author Friedrich Poeschel sees no reason for concern in the high emigration figures, however: *"They are not voting with their feet against Germany."* The high levels of emigration, he says, are instead an expression of the increasing internationalization of Germany and the strong export orientation of the German economy.

Source: OECD 2015



Ralf Thölke, the current Head of Sales for the Asia/Middle East/ Africa region at the corporate headquarters in Essen/ Oldb., provided support with the construction of the subsidiary Vogelsang USA Limited for two years.

the management at Vogelsang suggested that I fly to the USA for them." Within a few weeks Thölke was sitting on the plane. He did not have a lot of time to prepare for his placement abroad. *"My school English was fairly rusty, which hindered communication with customers and colleagues a little at first. Telephone calls were particularly difficult because of the language barrier. After a couple of months, however, this was no longer a problem at all."*

After a short integration phase, Thölke not only helped his colleagues in Cleveland, but also learned a lot himself. *"Compared to Germany, processes in the USA were much more standardized at that time. This simplified individual work steps and increased efficiency,"* says Thölke. Thölke took the knowledge of these work steps and the more rapid fulfillment of orders and offers with him back to Germany. There he incorporated his experiences into his daily work routine, thus contributing in turn to the optimization of work processes at the headquarters. ▶

CAREERS ABROAD ...

Today, planning and undertaking a placement abroad at Vogelsang naturally takes place with more preparation and not out of necessity. Depending on the area of responsibility, the subsidiary and the personal motivation, there are various options to work in one of the over 25 company locations worldwide or to undergo training abroad.

... for trainees (vocational training).

The training program to become an international industrial clerk at Vogelsang automatically requires a placement of several weeks in a subsidiary abroad. In other vocational training programs, the trainees themselves can decide whether they would like to complete part of their course abroad. In this way, Vogelsang also supports participation in the European Union's ERASMUS program, and helps both with making contact in the host country as well as with the planning and organization of the placement, including support with accommodation. With some commitment and knowledge of foreign languages, trainees can fulfill the dream of having an international career.

... for employees at the company headquarters.

Vogelsang employees in Germany can, under certain conditions, either temporarily or permanently work for Vogelsang abroad, for example as part of the deployment of professionals or at their own initiative.

... for employees from outside Germany.

Employees and applicants from foreign countries are always welcome to participate in training at the company headquarters in Germany. In many cases, international applicants first undergo training at the German headquarters before then starting their job at a Vogelsang subsidiary abroad. International employees are also always welcome at the headquarters in Germany. This intensifies exchanges with the subsidiaries and creates understanding of work morale and cultural practices on both sides.

The dream of emigrating

One in every eight Germans dreams of emigrating permanently. More than a third of Germans would like to spend some time abroad, and for those under 30 the figure is as high as 50.3 percent. Almost one third of respondents have already lived outside of their home country, and more than one eighth (13.1 percent) for longer than one year.

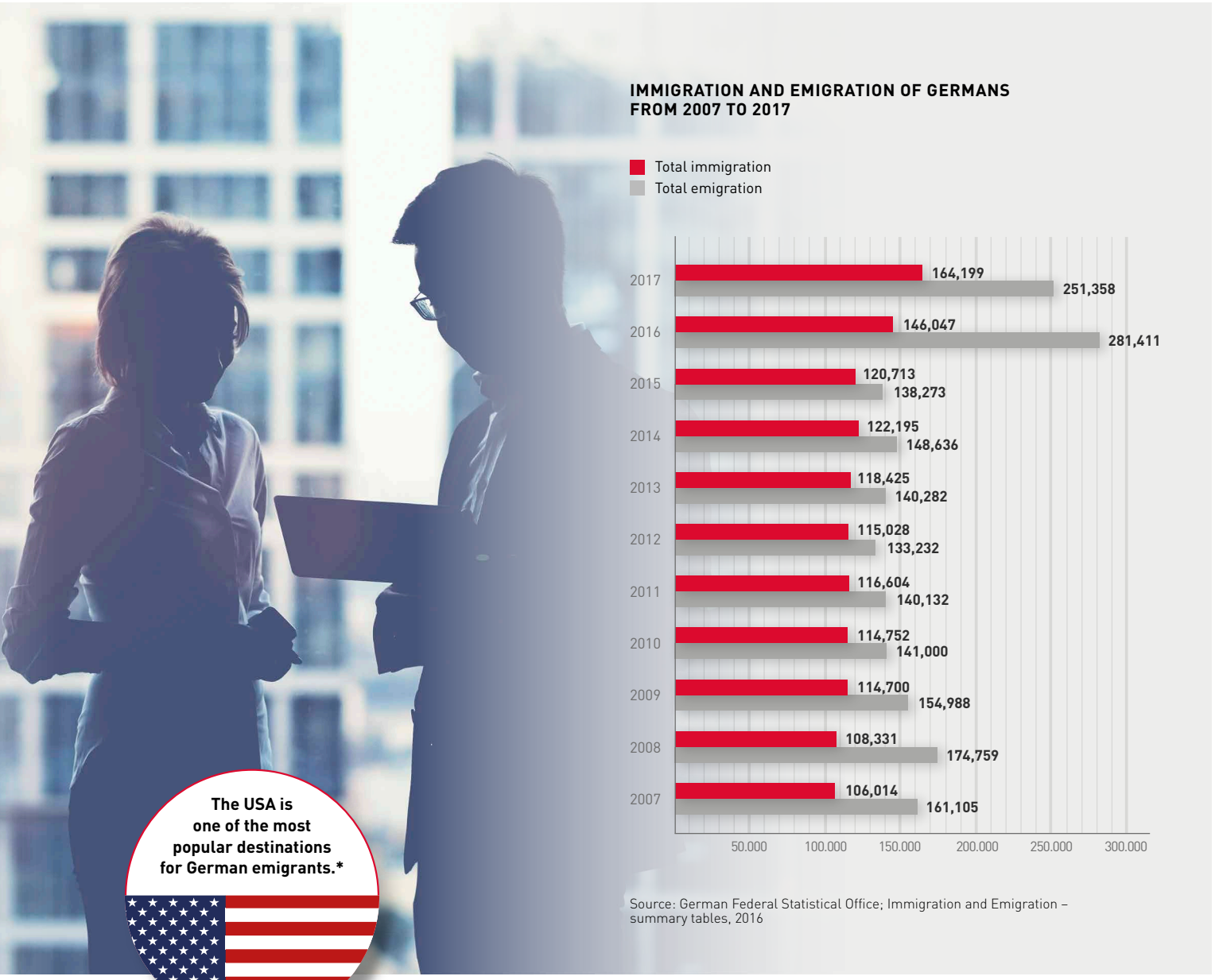
It should be noted that more than half of Germans would only settle outside of Germany after their retirement. More than one third (37.1 percent) still see emigration as an option for their professional life however. The under-30s mostly see this happening directly after school or education and during their degree studies, and in any case before starting a family.

The most popular destination countries are the USA, Spain, Italy and Australia.

Source: OECD 2015

INTERNATIONALIZATION COURSE OPENS UP NEW OPPORTUNITIES

Due to the enhanced international orientation of Vogelsang, the options and opportunities for working abroad and building one's own career have become more extensive in recent years. *"The corporate structure, with its many subsidiaries and representatives from abroad, opens up many opportunities for colleagues*



today," explains Thölke, the pioneer in this area. For him there is no question that the demand for personnel with experience abroad is there and will increase further: "*The need to deploy employees abroad is a permanent one. During the construction of a new plant, for example, it is always good, if not necessary, to have experienced technical personnel from headquarters on location.*" In sales too, employees with international experience have a decisive advantage: They know the country-specific demands and needs of the customers and are thus better able to reconcile requirements and the solutions offered.

Different countries, different customs

"*The requirements of our work could not be more different in some countries. In the USA and Asia, for example, customers are much more impatient than in Germany,*" says Thölke. "*While in Germany a customer inquiry can be worked on over several days or even a week without any trouble, customers in the USA and Asia demand service within a short period, ideally on the same day.*" The expectations of a company, the cultural traditions and individual work processes vary from country to country and cannot be equated to the customs in Germany. One thing is important above all else in this context – ask lots of questions, check information in detail, do not hang on to old approaches and quickly get the right feel for customers and culture. Thölke's conclusion: "*Anyone who has worked abroad is better able to understand customer wishes and concerns and to approach them in a more targeted way – you only learn properly how a contact thinks on location.*" ■

HOLA AND WELCOME TO HEADQUARTERS



José Gimeno Gómez, Regional Sales Director for the region South America on his move to Germany

Six years ago, the Spaniard José Gimeno Gómez came to Germany to train in internal sales at the Vogelsang corporate headquarters. Instead of then transferring to the Spanish subsidiary as planned, José Gimeno Gómez decided to stay.

THINK RED!: Mr. Gimeno Gómez, why did you leave Spain?
José Gimeno Gómez: I found out from a colleague at my previous employer that Vogelsang in Spain was looking for someone to train in internal sales for two years at the corporate headquarters in Germany. For me it was a chance to gain secure employment and better opportunities for advancement in an international company. When I was making this professional decision in 2012, the economic situation in Spain was poor, with unemployment very high at around 25 percent.

How did your start at Vogelsang in Germany go?
When I arrived, Vogelsang had already organized an apartment and supported me with administrative matters. This was a great help. At work I was first trained in production. After just a couple of months, I was already working on the coordination of orders and offer preparation for the countries Spain and Norway, among other things, and for Turkey too a few months later.

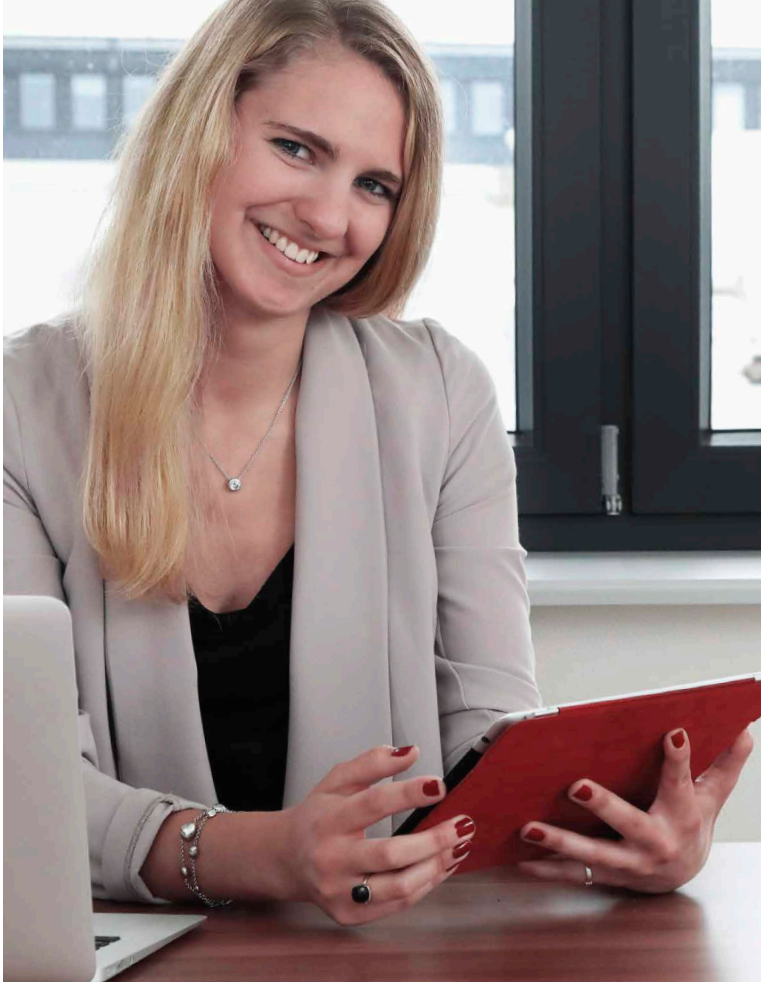
You originally wanted to return to Spain after two years and then decided to remain in Germany? Why?
I got on extremely well with my colleagues, felt very happy in the team and wanted to further improve my German. Working in the corporate headquarters also has a lot of advantages, for example I have direct contact with the engineers. If I have questions about a product I can have everything clearly shown and explained to me.

To what extent do you benefit as a Regional Head of Sales from your Spanish roots and the experiences that you have had in Germany?
Contact with customers in South America is easy for me, as Spanish is spoken in many countries there. I can also understand the temperament and wishes of customers from this region well. My experiences in Germany and the building of my expertise in German engineering, on the other hand, help me to create and maintain a trusting relationship with customers. "Quality & Technology Made in Germany" is a first-class quality seal of approval not only in South America, but all over the world.

What differences do you see between the Spanish and German working cultures?
There are some. In Spain, for example, you are less organized, which can be chaotic, but it creates more flexibility in workflows. It is also interesting how mistakes are dealt with in the different countries. In Germany, you try to rectify mistakes and find the cause, so that everything functions smoothly in the future. In Spain, you concentrate more on the mistake and the possible consequences, rather than working on solutions.

How do you see your future at Vogelsang?
My main task will be to consolidate the business in South America, increase our market share and position the company as a benchmark for high-quality products in the sector. Due to the constant expansion of Vogelsang, there are always new opportunities to develop further within the organization, and move between jobs and areas. These opportunities to evolve professionally, while still having a secure workplace, are absolute strengths of Vogelsang to me as an employee. Despite a modest recovery in the labor market, a Spanish company could not offer me this. ■

TASTER COURSE IN THE COUNTRY OF SAVOIR VIVRE



Maria Hollah, Dispatch Department, on her experiences in France

As part of her further training to become an international industrial clerk, Maria Hollah spent three weeks at the French Vogelsang subsidiary. She has shared what she learnt there, in addition to the language and her work, in the following discussion.

THINK RED!: Ms. Hollah, your three-week stay abroad in France was five years ago now. Is it time to catch up with your French colleagues?
Maria Hollah: That's true! Because my colleagues in the Vogelsang subsidiary in Montboucher-sur-Jabron in the south of France welcomed me with open arms at that time. The atmosphere was very friendly. This meant that it was not so bad that we could only understand each other with gestures at first. After a short period of acclimatization, my previous knowledge of French did not let me down, however.

What else apart from language skills did you take back to Germany with you, that you still benefit from today in your work?
I became more independent and more open with colleagues or other contacts who speak different languages. The insight into the culture and the attitude towards performance in another country and another subsidiary expanded my horizons. Today I have more understanding for colleagues who come from different countries and their working methods. This has significantly improved cooperation.

You were abroad during your second year of training. What do you say to current trainees when it comes to placements abroad?
You should make sure that you take this opportunity. Especially as Vogelsang provides lots of support with organization, transport, accommodation and subsistence. The trainees will benefit from their experiences for the rest of their lives. Particularly at the beginning of one's professional career, a placement abroad looks great on your CV and opens up further career opportunities.

You successfully completed your training as an industrial clerk and an additional training course to become an industrial business administrator long ago. Where will your journey at Vogelsang take you next?
I would like to develop further within the organization and take on more responsibility, so that I can demonstrate my knowledge and abilities and prove them. This is why I would be happy to go abroad again at any time, including for a longer stay. ■

IMPRINT

Editor:
Vogelsang GmbH & Co. KG
Holthoege 10 – 14 | 49632 Essen/Oldb. | Germany
Phone: +49 5434 83 - 0 | Fax: +49 5434 83 - 10
germany@vogelsang.info | vogelsang.info

Managing Directors: Harald Vogelsang, Hugo Vogelsang

Editor in Chief & Project Management: Marketing Vogelsang

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