



KLINGER NEWS

Group Magazine



EDITORIAL



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The desire for safety is as old as humanity itself. From finding refuge in caves in prehistoric times to building castles in the medieval ages, the need to protect ourselves from harm has always been a driving force. Our rapid technological progress and the products we require to keep our economies running as well as consumer demands satisfied, however, have led to significantly more complex safety requirements than those envisaged even half a century ago.

What has this got to do with a leading developer and manufacturer of gaskets, valves, instrumentation, expansion joints and metal hoses, you might ask. Taking into consideration that sealing technology and its related fields are responsible for significantly reducing emissions and ensuring that the environment is protected from hazardous media – while at the same time helping plant operators to avoid unexpected and costly downtimes – we would say it has everything to do with it. In fact, we would even go so far as to say that we are a Group of companies fully and firmly established in the plant safety business. And the articles in this edition of the KLINGER News, featuring stories from all over the world, underline this fact: From coming to the aid of a hydropower plant operator in Argentina

to insights into one of the "coolest" forms of quality assurance imaginable in Norway, and showing what customer proximity in the course of a refinery shutdown in South Africa should really look like, our efforts always center on providing our customers with the necessary plant safety measures in order for them to be able to focus on their core business.

Sealing technology-related plant safety, however, is not restricted to a plant's pipe system and its surrounding infrastructure. A corresponding awareness for the necessity of correct bolting techniques has to be instilled in each and every one of us – the highest level of quality, guaranteed across the entire lifecycle of a product, is rendered ineffective if incorrectly applied. This is the reason why KLINGER also continues to push the envelope by developing new training tools, such as for example KLINGER FIT.

Needless to say, the above is only an appetizer. We hope you enjoy our foray into the world of plant safety as KLINGER sees it, and wish you pleasant reading.

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INDEX

	» 06-07 Staying Safe		» 08-09 Energy Heroes		» 10 Knowledge Base	
» 11 Staying FIT		» 12-13 Case Study		» 14-15 Ready for Business		» 16-17 On Location 
	» 18 Customer Proximity		» 19 Full of Energy		» 20-21 Butterfly on the Rocks	
» 22-23 Pressing Business		» 24 KLINGER@ACHEMA		» 25 On Display		
			» 26 On Exhibit Field Trip		» 27 In Memoriam	

STAYING SAFE

Plant safety as seen through the eyes of KLINGER

KLINGER FOR SAFETY



BUSINESS EXCELLENCE

We set the standard in the production of technologically excellent and top-quality sealing materials.



CUSTOMER VALUE

Our customers come first. We do not limit ourselves to products. Instead, we provide tailored solutions in order to master their respective challenges.



GLOBAL REGIONALITY

We manufacture our products on the basis of internationally approved, certified quality and environmental standards. Due to the global presence of the KLINGER Group, we are represented all over the world. As a consequence, we are also absolutely familiar with the corresponding local conditions at each customer location.



SUSTAINABILITY

Our entrepreneurial activities firmly take environmental protection into account. This is also proven by our quality and environmental standards, which we maintain in order to also offer future generations a world worth living in.



INNOVATIVE EDGE

Developing both our company and our products further is a constant process. Our power of innovation, which continuously leads to new solutions, is based on more than 130 years of experience across all industries.



PEOPLE SPIRIT

We create optimal working conditions for our employees. An open culture of communication, a good and fair working atmosphere as well as advanced training opportunities form the basis of our shared success.

KLINGER, according to the company's claim, is "trusted. worldwide." Trust, however, is not something simply bestowed upon you, but something earned by continuously meeting and exceeding expectations. With regard to KLINGER, this refers to the reliable provision of high-quality gaskets, valves, and instrumentation across a time span of more than 130 years. Seen from a different angle, we can also refer to this as more than 13 decades of operational safety for our customers, which now also features expansion joints and metal hoses for enhanced media flow control. So yes, KLINGER is definitely in the business of providing plant safety.

Richard Klinger, the founder of what would become today's KLINGER Group, invented the level gauge in 1886. Not entirely satisfied with its sealing properties, the young inventor went on to create a revolutionary calendered, compressed fiber gasket material, which he called "KLINGERIT": Sealing technology, as we know it, was born and took the industry by storm. All of a sudden, leakages were no longer a given and could be safely held in check. Next to resource conservation and environmental protection, which would take several more decades to filter into our collective awareness, Richard Klinger had

made the first major contribution towards what we define as modern plant safety.

Safety matters

Seen from the perspective of a sealing technology expert, plant safety is based on three distinct pillars: First, the quality and suitability of gaskets, valves, instrumentation, expansion joints and metal hoses used for a specific application. Second, the knowledge and qualifications of technicians charged with creating a tight seal. Third, the monitoring and maintenance of pipe systems to ensure their continued operation within specified parameters and in compliance with applicable regulations.

Quality

In 2006 the US Fluid Sealing Association published a white paper aptly named "Sealing Systems Matter". Its contents, amongst other issues, addressed the fact that there is a trend towards primarily considering the initial cost of a sealing product as opposed to seeing "the big picture". As gaskets and valves are application-critical elements, this of course alludes to the possible impacts inferior seals can have on plant safety, and range from unscheduled shutdowns to damage to man, plant infrastructure and assets as well as the environment. High-quality products, backed by appropriate quality audits and

corresponding internationally approved certification, are the best choice for operators wishing to focus on their core business and not having to worry about potential leakages. Furthermore, from an economic point of view, they do pay off – because simply looking at the purchase price and not considering the directly related follow-up costs in the event of an incident does not tell the entire lifecycle story of the product. At KLINGER we take quality seriously and are no stranger to quality management audits and certificates such as ISO 9001 or ISO 14001. Environmental protection, a positive side effect of plant safety, is also firmly anchored in our corporate values by our commitment towards sustainability. In this context, we are also proud to report first certifications in compliance with EMAS, the eco-management and audit scheme of the European Union. Last but not least, a wide range of individual certificates issued by unaffiliated third-party material testing agencies underline that our products are capable of meeting the requirements they have been manufactured for. To this date, for example, KLINGER®top-chem 2000 is the only PTFE gasket worldwide to have been awarded a Fire Safe certificate.

Know-how

In our opinion, maintaining a leading position in the sealing technology business is coupled

with a commitment to lifelong learning. On the one hand, this refers to staying abreast (or ahead) of the latest industry developments as well as to further developing one's own business, for example by adding new and important portfolio elements – in our case this refers to the addition of expansion joints and metal hoses to our product range. On the other hand it demands intimate knowledge of a customer's pipe and sealing systems in order to provide the best possible solution, product or service. Next to an encompassing knowledge base, this also implies certainty regarding the legal and regulatory framework that governs the operation of a plant at any given location. In other words, we not only deal in plant safety, instrumentation and enhanced media flow control solutions, but in solutions tailored to every single plant's specific characteristics. And this takes the catchword "entrepreneurship" to an entirely new level. In our case, the motto of our employees is not "Act as if KLINGER were your own company", but rather "Act as if the customer's plant and his business success were your own."

Empowerment

Staying true to the motto stated above, KLINGER is also firmly committed to ensuring that technicians around the globe are best trained to face the challenges posed by modern sealing technology.

Next to a presence in all major sealing organizations, where KLINGER helps to shape uniform standards and thus improve plant safety, the Group of companies is also an avid supporter of the European EN 1591-4 (Flanges and their joints – Part 4: Qualification of personnel competency in the assembly of the bolted connections of critical service pressurized systems). Holders of this certificate provide a plant operator with the certainty that personnel hired for pipe system-related sealing duties are truly up to the task. KLINGER offers a wide range of trainings to successfully acquire the certificate and has also recently launched KLINGER FIT, a torque application trainer to further improve the training benefits (see our related article in this edition of the KLINGER News). Fully embracing the digital age, KLINGER also offers a number of apps and other digital services that support our customers in selecting the correct gaskets, valves and actuators for their specific requirements. This also includes smart phone or tablet-based torque calculators, which take the application type and involved sealing materials into account.

Along the entire lifecycle

At KLINGER the commitment to quality, durability and plant safety goes well beyond the provision of a product. Based on our belief that business should always be conducted

at eye level and fostered long-term, we offer our customers a wide range of plant safety and plant efficiency related services. They include on-site efficiency inspections, such as for example steam surveys as well as high-tech leakage detection via drones – both from the air and from within the pipe system itself. Other innovations to support our customers include, for example, the innovative KLINGER Gasket Insertion Tool (KGIT), which enables divers to safely and precisely install gaskets in offshore pipelines without fear of injuring their hands. Last but not least, KLINGER is also renowned for its on-site shutdown services, which have yet again been enhanced by means of an innovative solution, recently demonstrated in South Africa.

trusted. worldwide.

When all is said and done, two groups of individuals make the three pillars of KLINGER's approach to the topic of plant safety a reality: Our customers and our employees. We would like to thank the former for their trust and the latter for their unwavering commitment to upholding our high quality standards around the world. As a supplier and as an employer, we look forward to meeting and exceeding your expectations. Today, and in the future.

ENERGY HEROES

Wien Energie and KLINGER Gebetsroither join forces for energy transition



One of several KLINGER Ballostar KHSVI ball valves, from DN 250 up to DN 400, installed on the heat pump

 In November 2017 the Austrian energy service provider Wien Energie held a groundbreaking ceremony for a very special facility. A little over half a year later, the project – the erection of Vienna's first large-scale heat pump – is rapidly nearing its completion. We sat down with Wien Energie Project Head Christoph Segalla to find out what its installation on the premises of the company's cogeneration plant in Vienna-Simmering means for the energy transition and what role KLINGER Gebetsroither played in its construction.

KN: Mr. Segalla, thank you for making time for this interview. Could you please start by telling us a bit about the origins of the project?
CS: Gladly. Historically speaking, district heating mainly relies on gas to service its

customers. Finding ways to counter an over-reliance on this fossil fuel and to bring more renewables to the energy mix is among the top priorities of Wien Energie to support the energy transition and to also reduce CO₂ emissions. And this is why we came up with the idea of the large-scale heat pump.



KN: Can you tell us about the heat pump's working principle?
CS: It is currently being installed at our cogeneration plant in Vienna-Simmering. In essence, it uses the cooling water of the power plant, into which the unusable heat from the cogeneration process is diverted, as its heat source. Our large-scale heat pump consists of two identical units, each with its own closed refrigeration circuit. The refrigerant medium absorbs the ambient

heat via a heat exchanger, is compressed by means of an electrically powered compressor, and heated. The refrigerant is then returned to its fluid phase and the generated waste heat is fed into the district heating water. Starting with a temperature of 6 °C, we can also use the "Donaukanal" (a regulated side arm of the Danube river) as a heat source to generate heat of more than 90 °C.

KN: Out of interest, we are speaking about a large-scale heat pump after all, how large is it?
CS (grins): Definitely larger than your average household appliance. As I have already explained, our solution consists of two identical heat pumps. They have a rectangular shape and are 20 meters long, 8 meters wide and their height is also 8 meters. Their weight might actually be an even more impressive figure – each of the pumps weighs 180 tons, so we are talking about a combined weight of 360 tons.

KN: Now that sounds like a challenge in itself. Speaking of which, can you tell our readers how far the project has so far progressed and what challenges one encounters in such a project?
CS: Following our groundbreaking ceremony in November of last year, we have almost completed the entire construction phase. With regard to the pipe system, we are in the final assembly stage, and are also working on the remaining cabling and insulation tasks. As a consequence, we are confident that we will be able to complete the construction by mid August and will then begin the commissioning phase, which will start with cold commissioning.

KN: And the challenges you encountered?
CS: First off, you have to understand that this is the first major heat pump project that we have ever undertaken, meaning this was also new territory for us and required careful planning. The aforementioned dimensions

also posed a challenge as the heat pumps had to be installed into an existing building, a former turbine hall, with the aid of special heavy-duty cranes. Amongst others, we had to remove the old turbine core and strengthen the ground level of the building in order for it to sustain the weight of 360 tons.

KN: And what part did KLINGER play in the project?
CS: KLINGER, in this case KLINGER Gebetsroither, has been our preferred gasket and valve partner, especially for our transmission pipelines, for many years. The products we use offer us numerous benefits, which go well beyond their top quality. For example, their design is a perfect match for our requirements, they feature a full bore that results in less frictional loss and they are characterized by excellent sealing properties. In this project, we rely on KLINGER KHI ball valves at the interfaces to the district heating system as well as within the heat pumps. Furthermore, we use KLINGER PSM gaskets for our applications as well.

KN: Are you satisfied with the products provided?
CS: Absolutely, as stated, they are a perfect fit. I'd also like to mention the excellent cooperation we enjoyed in the course of the project. We had to set some very tight deadlines, and KLINGER delivered in their usual, professional manner, and were always ready and willing to provide their expertise in all matters pertaining to fluid control, wherever required. As a consequence, I am already very much looking forward to our large-scale heat pump launching into standard operation at the end of this year.

KN: By way of closing, could you tell our readers something about the performance rating your large-scale heat pump will have?
CS: Yes. Following its completion, the heat pump will feature a performance of 10,000 KWh. It will provide around 25,000 standard households with district heating from a renewable source and will help us to save around 40,000 tons of CO₂ emissions on an annual basis.

KN: Thank you for the interview.



Christoph Segalla, project head for one of Europe's largest heat pumps at Wien Energie in Vienna

KNOWLEDGE BASE

KLINGER Group meets for annual sealing conference

The KLINGER Group invites its member and partner companies to an international three-day sealing conference on an annual basis. Attendance is usually high, which says a lot about the motivation of the participants. On the one hand, this is due to a packed program that addresses current topics, developments and challenges faced by the Group and its distribution partners, on the other hand the event also serves as an excellent venue to exchange ideas and experiences. The motto of this year's international sealing conference could well have been "knowledge sharing".



A workshop with experts from KLINGER manufacturing companies, distribution companies and sales partners

Attending KLINGER's international sealing conference is most definitely not for the faint-hearted. While without doubt interesting, a quick look at the agenda reveals that the more than 60 participants from a total of 30 plus KLINGER and partner companies had not simply gathered in Warsaw, Poland, for an informal get together. Instead, the program featured market analyses, marketing updates, presentations and case studies as well as strategy discussions. Guest lectures, workshops, a panel discussion and a live demonstration of KLINGER FIT served as the interactive highlights of the conference, which ran from April 24 to 26 of this year.

In the know

"Providing high-quality products is the basis for being successful in our dynamic markets," states Group Executive Director Christoph Klinger-Lohr, and goes on to explain the abundance of market analyses and case studies to be found on this year's agenda: "We already know which Service & Distribution company (S&D) sold what. Now we need more detailed information on what the final customer is actually using it for. This will enable us to offer more solutions and a precisely tailored range of products and services. At the end of the day, we want to provide even better plant safety, customized to the actual and ever-changing requirements of the

industries we are serving." Luckily for KLINGER, staying abreast of technological developments in order to increase customer proximity and to further develop business does not require external aid. The companies belonging to the Group all have individual fields of expertise and were both willing and able to provide in-detail information in the course of six industry-specific workshops. The case studies, which were presented by the key account managers of the respective companies, also addressed the topic of knowledge sharing and generally focused on non-standard sealing applications.

From all angles

Attending KLINGER's international sealing conference does not only help to sharpen the internal view of things. The international sealing conference also invites customer guest speakers on a regular basis to learn from their insights and opinions. In this year, Marian Rybak, the former president of the managing board of Grupa Azoty, Poland's largest chemical group, took the stage. His guest lecture focused on the Pulawy nitrogen plant, the company's most successful entity, and its collaboration with KLINGER Poland. Our Polish colleagues have a long-term tradition of supplying the facility with a wide range of gaskets, ball and piston valves as well as glass level gauges. At one point in

his presentation, Mr. Rybak noted that one of the KLINGER top-chem gaskets had been in operation for 15 years and was still as good as new. Reflecting on this impressive display of durability, he went on to say that he had always relied on KLINGER gaskets. Taking into consideration that Marian Rybak spent his entire life in the maintenance business, this is indeed praise of the highest order. Speaking as a customer, his parting words to the audience were: "Never save on sealing material!"

Another highlight near the end of the official program of the conference was the presentation of KLINGER FIT, a bolting simulator developed by KLINGER Dichtungstechnik. Demonstrated on stage by KLINGER Dichtungstechnik's Wolfgang Kohlbacher, it can be used to train applying the correct torque to a bolted connection in a hands-on manner. Equipped with sensors, the device reproduces an actual bolting situation and provides feedback on whether the bolts are too tight, too loose or optimal. Following three days of intensive work, networking and collaborating, this year's international sealing conference was concluded on April 26 with a tour of Warsaw. By way of closing, we would like to thank our host, KLINGER Poland, for organizing the event and all participants for their valuable contributions.

STAYING FIT

KLINGER introduces torque application trainer

Sealing technology-related plant safety is based on three pillars: The selection of suitable gaskets and valves for the desired process, their correct installation and last but not least, applying the correct torque to bolted connections. KLINGER FIT, a multi-feature torque application trainer, helps bolting technicians to train and perfect the required skillsets.

Wolfgang Kohlbacher of KLINGER Dichtungstechnik has just taken to the stage at KLINGER's annual international sealing conference. He shares the spotlight with a device that resembles a vertically installed pipe section with a flange connection on top. Using a torque wrench, he gets to work on the first bolt. A screen in the background depicts the force he is applying by means of a vertical bar. A satisfactory "beep" and a green check mark later, we know that Wolfgang is no stranger to the skills every bolting technician should have. And he has just presented KLINGER's latest innovation to ensure that plant personnel meet the requirements of the EN 1591-4 (Flanges and their joints – Part 4: Qualification of personnel competency in the assembly of the bolted connections of critical service pressurized systems): KLINGER FIT.

Hands-on experience

Next to providing bolting technicians with the ability to apply the correct torque, KLINGER FIT also trains the sequence in which the bolts have to be tightened. The underlying software can also display a session's history, allowing the user to review previous attempts and track his or her progress. The program, however, can do a lot more. In fact, it measures five distinct parameters: The leakage rate (if any) depending on the applied torque, the effects of using different sealing materials, the corresponding setting behavior of the selected gasket, the actual torque, the distribution of forces across the flange and the impact that tightening the bolts in a specific sequence, or having

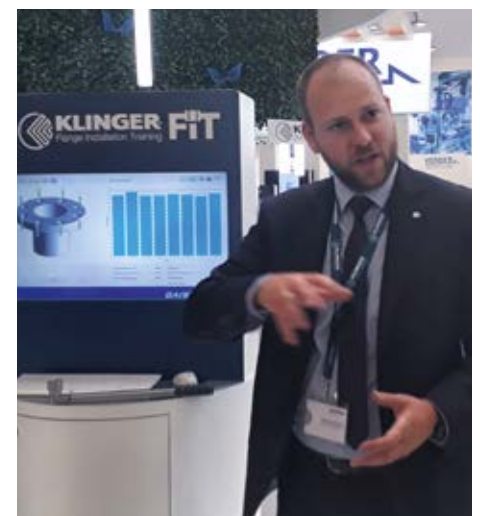


Also Mark Garvelink of KLINGER B.V. tries his hand at KLINGER FIT



to revisit a bolt, will have. Wolfgang Kohlbacher: "KLINGER FIT stands for the highest level of 'learning by doing' achievable in a precisely simulated environment. Next to allowing bolting technicians to improve their skills without having to worry about adverse effects on an existing pipe system, it also enables them to experiment with different sealing materials and techniques in order to comprehend the various aspects required to achieve tightness to atmosphere."

KLINGER FIT can be ordered for training sessions at either KLINGER training centers around the globe or at your premises through your local KLINGER company.



Wolfgang Kohlbacher of KLINGER Dichtungstechnik holding a talk on the benefits of KLINGER's torque application trainer

CASE STUDY

Grupa Azoty and KLINGER celebrate more than 50 years



The Pulawy nitrogen plant of Grupa Azoty, one of the world's largest melamine producers

 **Successfully leading a company across decades is becoming a rarity in our dynamic times, servicing a customer over the same duration is now a feat almost unheard of. In his guest talk at the KLINGER international sealing conference held in Warsaw, Marian Rybak, former president of the management board of the country's largest chemical plant, and part of Grupa Azoty, spoke of his experiences with the KLINGER Group and why he never saw a reason to change suppliers. Here's what he had to say.**

KLINGER's involvement with the Polish Grupa Azoty, which also happens to be the country's largest chemical group, dates back to a time long before

KLINGER Poland was ever formed or even before the Iron Curtain fell. Fittingly, it was one of the sealing technology expert's innovations that had caught the attention of the Polish foreign trade center: In 1966 KLINGERIT, which had led to a paradigm shift in the industry, paved the way for a collaboration between two leading groups of companies that would continue to exist to this day.

Network of excellence

Over the years, more and more KLINGER companies were able to provide their services for the Pulawy nitrogen plant of Grupa Azoty. In 1976, for example, a new melamine facility on the premises of the plant led to the delivery of approximately 500 KLINGER Ballostar KHA ball valves, manufactured

 by KLINGER Fluid Control, and again sourced via the Polish foreign trade center. The establishment of KLINGER w Polsce (KLINGER Poland) in the early nineties enabled our colleagues to intensify their cooperation with Grupa Azoty's prime asset. "The advantage of being a member of a Group of companies is that you can bring their various strengths to bear in order to best serve your customer," states Marek Flisowski, Managing Director of KLINGER w Polsce, and adds: "For this purpose, we hold tailored product presentations for select refinery personnel on a regular basis and also invite



“ KLINGER, just keep the level of quality you currently provide and your costumers will be more than happy!"

Marian Rybak, former Vice President of the Management Board, Grupa Azoty

members of the plant to attend our product seminars." And "spreading the good news" has definitely paid off for Marek and his team: Following their initial debut that resulted in the introduction of KLINGERSIL compressed fiber sheetings from KLINGER Dichtungs-technik and glass level gauges from KLINGER Italy, the Polish colleagues have been responsible for numerous other changes as well.

Partnership based on trust

For Marian Rybak, also a former vice president of the management board of Grupa Azoty, working with KLINGER has always been a matter of mutual trust. "Switching to KLINGERTop-chem

as the exclusive gasket material for our sulfuric acid applications, for example, would not have been possible without fully trusting in KLINGER's capability to provide a high-quality material able to meet the high demands of this sensitive process," he says, and adds: "The same is obviously true for the consignment stock set up at the refinery in 2010, which ensures that a maximum availability of gaskets and other sealing technology-related products is maintained directly at the plant at all times."

Safety first

Next to the highest level of quality and durability – one of the KLINGERTop-chem gaskets mentioned

above has already been in service for a record-breaking 15 years and still functions perfectly – plant safety has always been the decisive factor for every single contract awarded to KLINGER. Examples in this context include the full replacement of previously installed globe valves with piston valves from KLINGER Fluid Control in the DOWTHERM installation of the refinery or the choice to opt for soft seated butterfly valves with diameters of up to 1,200 mm for a new cooling system belonging to the nitrogen fertilizer production chain. Summarizing his years of working with KLINGER, Marian Rybak had the following to say: "Seen from the combined angle of quality, durability and plant safety, in other words considering the total cost of ownership, KLINGER is most definitely a supplier you should take a closer look at." At the end of his guest talk he directly addressed the attendees of the KLINGER international sealing conference, and added: "KLINGER, just keep the level of quality you currently provide and your customers will be more than happy!"

KLINGER IN POLAND

Founded: 1992

Legal structure: Limited company

Main markets: Chemical, pulp & paper, oil & gas, food & beverage, power generation, district heating

Location: Warsaw




15
Employees

Highlights:

- » supplier of sealing sheets and gaskets for media between 200 and 400 °C
- » leading in the field of high-precision glass level gauges for steam applications in power generation and all industry segments
- » engineering project supplier of actuated quarter-turn valves for a wide range of industrial installations



READY FOR BUSINESS

KLINGER and SINYUAN open Polystrat plant in China



Daniel Schibli, Group Executive Director of the KLINGER Group and Yilin Yuan, President of the SINYUAN Group



Taking into consideration that KLINGER is "trusted. worldwide." as a developer and manufacturer of high-quality gaskets and valves, readers might be surprised to learn that the Group of companies is also an important supplier for the automotive industry and has been so for almost an entire century. This business field has recently expanded into the Chinese market with the opening of a Polystrat plant on the premises of KLINGER's strategic partner, the SINYUAN Group, in China. The KLINGER News has the details.

On February 26, a large party of dignitaries, including Baiyong Zou, Head of the Chinese Communist Party for the Cixi Binhai Industrial Zone and Meniun Mao, Head of the Cixi Binhai Industrial Zone as well as Brigitte Robinson Seyrlehner, Austria's Consul General in

Shanghai and Christina Schösser, the Head of Austrian Commercial Affairs in Shanghai, gathered on the premises of KLINGER's strategic partner, the SINYUAN Group, for a grand opening. Welcomed by Yilin Yuan, President of the SINYUAN Group, Sakai Yaichi, President of the Japan Hamamatsu Gasket Corporation and KLINGER's Group Executive Director Daniel Schibli, the dignitaries, top customers and members of the companies celebrated the opening of KLINGER's first Polystrat plant on Chinese soil. The event, which was blessed with fair weather and above-average temperatures for the month of February, featured numerous touching moments. A plaque commemorating the opening of the factory was unveiled and a ribbon cut, signifying that the way is now open for business. Perhaps the most moving moment of the entire event was the planting of a tree by Yilin Yuan together

with Daniel Schibli. As it grows, so will hopefully the business of the strategic partners in China.

A clear message

In his speech, Yilin Yuan stated that the grand opening sends a clear message to Asia: High-quality Polystrat, a rubber-coated steel used for the production of shims for automotive disk brakes, has now become a part of value generation in China. As a consequence, it can now also be provided across the region Asia-Pacific in a faster and more efficient manner. Mr. Yuan also underlined that the new manufacturing site represents an important milestone in the cooperation between KLINGER and SINYUAN. Daniel Schibli, on the other hand, highlighted the reasons for expanding into China in his speech: "Extensive research and analysis of the Chinese market have shown us that our rubber-coated products, traded under

the Polystrat brand name, are in great demand here. This is why we decided to set up a state of the art production facility in Cixi together with our long-term partner, the SINYUAN Group. Having completed this step, we are now in a perfect position to best serve the Asian markets, first and foremost the world's largest automobile market – China."

Unique selling proposition

Eckhard Steeger, Managing Director of KLINGER Switzerland, is in charge of the company's Polystrat production and best suited to answer any questions about the significance of the product. "The niche we occupy in the value chain is the production of the rubber coated steel material. Our customers are automobile and brake manufacturing companies," he explains, adding: "Aside from those, your average brake disk in a car has to be replaced after every 25,000 to 30,000 kilometers as a result of wear and tear. Polystrat is therefore also very important for independent aftermarket suppliers." In China, the meanwhile world's largest car market with around 20 million cars produced annually, KLINGER and the SINYUAN Group will initially start with two Polystrat products: Polystrat BT38-21 and Polystrat BT38-20. Both are noise absorbing shims for brake disks that feature a rubber coating on both sides, which is subsequently vulcanized.



Celebrating together: the hosts and their guests of honor

Polystrat BT38-21, however, is also characterized by an additional acrylic adhesive, which is applied to the inner face of the rubber. It serves to further increase the sealing strength. "Due to its higher quality, Polystrat BT38-21 is typically used by original equipment manufacturers, while BT38-20 is very popular in the aftermarket segment," explains Eckhard.

Ramping up

According to our resident Polystrat expert, who has visited the plant numerous times since its grand opening in February, the future looks bright for Polystrat in China. "In terms of plant design, the facility in Cixi is the exact twin of our plant in Eggliswil,

Switzerland. Generally speaking, the new manufacturing hall is designed for a total of six lines and features generous areas for basic materials as well as for manufactured goods storage. The necessary infrastructure, such as for example the solvent storage tanks, has also been set up to accommodate the envisaged six-line design," reports Eckhard Steeger. Following the installation of the tailored plant control software in April, the plant operators have proudly reported the commencement of serial production as of July of this year. By doing so, they have opened up another chapter of KLINGER's long-term commitment as a top-supplier for the automotive industry. And taken it to new heights.



From left to right: Eckhard Steeger and Daniel Schibli (KLINGER Group), Brigitte Robinson Seyrlehner (Austria's Consul General in Shanghai), Sakai Yaichi (President of the Japan Hamamatsu Gasket Corporation), Yilin Yuan (President of the SINYUAN Group)

ON LOCATION

KLINGER South Africa provides mobile shutdown services



A major asset: the Klinger mobile gasket production facility on the premises of Engen's refinery in Durban, South Africa

 **As an international Group with companies spanning the globe, Klinger more than understands the necessity of customer proximity in order to successfully provide plant safety. Klinger South Africa, working for their customer Engen, has taken the most literal approach to being close to a customer – with excellent results.**

Our story begins in August 2017. Brent Howell, one of Klinger South Africa's technical sales representatives, was busy planning and preparing the stock requirements for the Engen refinery in Durban South. During various meetings with the refinery's personnel, he learned that the entire plant was scheduled for major refurbishment (shutdown) in March 2018. Seeing an opportunity to provide the customer with more service, Brent contacted his Klinger colleagues to co-formulate a strategy.

Getting started
Partnering with Aveng Grinaker LTA at the refinery, Klinger South Africa was tasked to perform a sequence of jobs including flange machining, gasket installation as well as bolt torquing and tensioning. As an add-on service, Klinger South Africa's new mobile gasket production facility was placed on-site at the refinery during the entire duration of the shutdown, to accommodate large-diameter kammprofile manufacture and refurbishment as well as soft cut gasket manufacture.

Gasket to go
"In essence, this is a truck trailer with a length of 14 meters that we fitted with the necessary infrastructure to recondition and manufacture kammprofiles and to cut sheeting into gaskets – on the fly, so to speak," explains Phillip Herbst, Marketing and Sales Director of Klinger South Africa. As work

progressed, it became apparent that the shutdown project would require more gaskets than expected. As a consequence, Klinger was asked to provide support for the Refinery North section, contracted to SNC Lavalin (formerly Kentz). The trailer, originally an add-on, suddenly turned into a major asset over night. "The original plan was to have it available for emergencies and minor sealing material shortfalls," remembers Phillip, adding: "In order to cope with the volume suddenly required, we set up multiple shifts and were thus able to cut gaskets literally all day long. Having all the components on site saved a lot of time and allowed us to fully focus on getting the job done."

Saving the day
Ultimately the shutdown, which was initiated on March 12 of this year, took more than the 35 planned days to complete. Thanks to Klinger's power of innovation, flexibility and

KLINGER IN SOUTH AFRICA

Founded: 1964
Offering : Products & services offered via three Divisions: Fluid Control, Fluid Sealing and Field Services (joint integrity, large-format sheet jointing, gland packing and bolt torquing)

Industries served: Metals, mining, pulp & paper, petrochemical, power generation, food and beverage and sugar milling industries.

383 Employees

10 Business locations in the country

Head offices: Wadeville, Germiston (near Johannesburg), Gauteng



detailed knowledge of all matters pertaining to sealing technology, the efforts made for a true success. Phillip Herbst's innovation, the mobile gasket production facility had more than just passed its trial by fire. According to the management of Engen, it substantially contributed to the positive outcome. "Having been originally brought on board for the Refinery South section, we had to quickly adapt to working across the entire refinery. Next to the tasks we had been contracted for, we had

to focus on manufacturing significant gasket volumes and also had to troubleshoot leaks in the North section. As a result of the altered parameters, our colleagues were under constant pressure and worked around the clock," says Phillip, summarizing the project. Asked about his thoughts on the outcome of the Engen project, he adds: "Klinger's major efforts in the course of the shutdown project would not have been possible without the full support of our staff and our executive

management. Most importantly, Engen is also well aware of this fact and has announced that they will continue to rely on our plant safety expertise for shutdowns and sealing technology-related services in the future."

About Engen
Engen Petroleum Limited, formerly Mobil South Africa, was purchased by the Malaysian PETRONAS (which is still the majority shareholder today) in 1990 and subsequently rebranded into Engen. The company has three core business fields, which include refining crude oil, marketing primary refined products and the provision of convenience services via its around 1,450 service stations. It features operations in 17 countries, mostly in the African sub-Saharan region and on various Indian Ocean islands such as Mauritius, and exports its products to more than 30 additional countries. The refinery in Durban has a nominal capacity of approx. 120,000 barrels (19,000 m³) per day. Next to operating its own bulk carrier fleet, Engen is best known for having partnered with companies such as Woolworths, Wimpy, Debonairs Pizza, and Steers, who subsequently offer a selection of their products at various service stations.



Ready to cut, manufacture and recondition on the fly: a look inside the fully equipped Klinger trailer

CUSTOMER PROXIMITY

KLINGER's new Cape Town branch opens



Open for business: KLINGER South Africa's new branch office in Cape Town

On July 16, 2018, a milestone event was celebrated by the employees and customers of KLINGER South Africa with the opening ceremony of the brand new Cape Town branch.

Formerly occupying three different buildings and an ever-growing Cape Town market, it only made sense to consolidate the KLINGER portfolio of solutions under one big roof. The new branch structure enhances the relation between Fluid Control, Fluid Sealing and Furmanite, thanks to a welcoming reception area and a separate counter sales area at the center of the space that recalls the atmosphere of the typical inns. The warehouses form the

legs of the building and create a vast and spacious area for storing, manufacturing and despatch.

Located alongside the new Sandown Road in a growing and popular industrial section lies the new branch within the Rivergate Business Park. Perfectly positioned, the location is literally on the doorsteps of Chevron Cape Town Refinery, Eskom Koeberg Nuclear Power Station and ArcelorMittal Saldanha Steel.

The opening ceremony was attended by KLINGER South Africa's Managing Director Andre Goosen, Financial Director Johan Smal, Sales and Marketing Director Phillip Herbst,

Branch Manager Charl Marais, Head Office representatives, KLINGER Cape Town employees as well as various customers and representatives of companies that deal with KLINGER Cape Town.

The day kicked off with a welcoming speech by Andre Goosen followed by a ribbon cutting ceremony and a short tour of the new building. Guests had the chance to interact with the various sales representatives and management, and were also given a short presentation of the various solutions offered at the branch. The afternoon closed off with a traditional South African "braai" and "boerewors" for everyone.

Customers shared compliments on the new branch and an excitement for their future relationships with the branch. KLINGER South Africa has successfully expanded its presence in the Cape through a fantastic new location, strong management, knowledgeable workforce, trusted solutions and a commitment to good customer relations.



Roland Naidoo, Technical Sales Representative of KLINGER South Africa, with a customer



Charl Marais, Cape Town Branch Manager, and Johan Smal, Financial Director, both KLINGER South Africa



FULL OF ENERGY

KLINGER Denmark holds Energy Day



Bedjha Tezcan of POLITEKNIK discusses product solutions for Denmark's energy sector

KLINGER Denmark invites customers and partners to its open house events on a regular basis. Covering a new topic and therefore also attracting a different clientele each time, they are renowned for the in-depth industry insights they provide. Scheduled to coincide with Denmark's plant shutdown season, the latest open house focused on solutions for the energy sector and was attended by engineers, buyers, technicians from small to mid-sized companies as well as engineering consultants.

"A typical open house event at KLINGER Denmark features three speakers. In the course of their respective presentations, they provide us with their expertise on a specific topic", says Helle Rasmussen, Internal Sales & MarCom Manager at KLINGER Denmark, and adds: "Following, for example, an open house on the marine industry, we this time invited our customers and partners to join us in taking a closer look at the energy sector in Denmark."

Energy demand

The Energy Day's guest speakers featured Michael Heide from KLINGER Fluid Control, Bedjha Tezcan from POLITEKNIK and Aleš Volek from NIHON KOSO. Formed as a control valve manufacturer in Japan in the 1960s, the latter has since expanded its

reach around the globe through various acquisitions. Its European branch is headquartered in the Czech Republic, where it operates under the name KOSO CONTROL EUROPE. In his presentation, Aleš provided a detailed overview of Denmark's past, present and projected electricity consumption, which also took the planned decommissioning of a large number of coal and natural gas-fired power stations into account. At the same time, it also detailed the rise of the renewables, specifically wind power: Starting in 1990, their share, i.e. consumption originating from electricity generated in onshore, near shore and offshore wind parks, was at around two percent. In 2016, this figure had already risen to approximately 37.6 percent and trends forecast it will continue to increase considerably until 2026. It is expected to peak at around 26 TWh, which would correspond to a share of 63 percent.



Enter KOSO and KLINGER

According to Aleš, a market-based exchange is Denmark's key to a successful energy future. With a net transfer capacity of 6.4 gigawatts, the country would be able to sell electricity to its neighboring countries in times of high wind production, whilst simultaneously importing it when the energy

feed-in from wind power is low. The only real bottleneck, according to KOSO's expert, is that the use of wind power is somewhat limited by the way combined heat and power plants (CHP) have been regulated in the past. New regulations and changes to taxation, however, are providing an incentive for CHPs to consider "bypassing" their steam turbines (and thus the generation of electricity) and to focus exclusively on producing heat. And KOSO, in cooperation with KLINGER, has been working on a solution to enable this shift from a technological point of view.

In the flow

The VecTor valve features a stacked disk design that can be modified by means of ports and multiple pressure reduction stages to meet any specific CHP requirement: It can therefore accommodate all the various flow rates and pressure differences encountered during a steam bypass operation – making a split-range valve system obsolete. Furthermore, it ensures continuous operation of the turbine bypass line and guarantees that the steam's high kinetic energy can be reduced to parameters suitable for a district heat exchanger. Last but not least, it meets the industry's low-noise and high availability requirements and is therefore a valid choice for Denmark's next step towards a successful energy transition.

BUTTERFLY ON THE ROCKS

Westad takes cryogenic valves to the limit



An LNG tanker en route to its destination



Westad, our marine experts from Geithus, Norway, have been producing cryogenic butterfly valves for liquefied natural gas (LNG) tankers since the early 1970s. In fact, our Norwegian colleagues are actually one of two leading companies capable of supplying this global market. Why this is so, and what it takes to ensure that a valve is "fit" for installation in one of the around 500 large LNG tankers, currently or soon sailing the seas, is explained below.

All a cryogenic butterfly valve needs to do aboard an LNG tanker is fulfill two functions: To reliably open or close and keep the medium inside the corresponding tank. Meeting these requirements when working with liquefied natural gas (LNG), however, can prove to be a challenging undertaking. In its normal state, LNG is nothing other than natural gas, consisting mostly of methane (CH_4) and ethane (C_2H_6). The conversion to a

liquefied state is achieved by means of a purification process that removes condensates such as water, oil or mud as well as other gases, for example carbon dioxide (CO_2) and hydrogen sulfide (H_2S). It is then condensed into a liquid at almost atmospheric pressure by cooling it down to approximately -162°C . At the end of the process the liquid takes up about 1/600th of the volume of the original natural gas. As the distances between natural gas exporting countries and their consumer counterparts tend to be substantial, transporting LNG in LNG vessels by sea – due to the significant reduction in volume achieved by the extraction process – has proven to be an economically and technically feasible alternative to laying pipelines.

Built to endure

"As a result of the risks involved in transporting LNG by ship, cryogenic butterfly valves have to pass stringent tests before being installed in a tanker's cargo

system," explains Jørn-Inge Throndsen, Managing Director of Westad, and adds: "Body and seat tightness testing is mandatory for all butterfly valves and carried out in accordance with international standards. Furthermore, a certain number of valves are also subjected to an extreme cryogenic test procedure." In the course of the latter, they are first submerged into liquid nitrogen baths at Westad's testing facility and then exposed to helium as a tracer gas to identify potential leak sources across the sealing surfaces. According to Jørn-Inge, the test conditions at the company's testing facility are actually even harsher than what a cryogenic butterfly valve has to endure aboard a ship. The liquid nitrogen, for example, at a temperature of -192°C , is almost a quarter below the "working temperature" found in an LNG tank. And due to its physical and chemical properties, helium is capable of detecting even the slightest sealing surface flaw – which immediately



Butterfly valves aboard LNG tankers need to withstand harsh conditions

leads to the butterfly valve in question being rejected. Last but not least, the tests are witnessed and certified by an independent third party, frequently with the corresponding customer also in attendance.

Safety first

Westad's testing facility was newly erected and completed in February 2016. A wide range of safety features and measures were also implemented specifically for the persons working there as well as for colleagues in its direct vicinity. Their task is to effectively counter two properties of the chemical compound: On the one hand, the gaseous form of liquid nitrogen displaces oxygen, which can lead to asphyxiation in confined and closed-off spaces. On the other hand, getting it on your skin, depending on the amount and the duration of exposure, can result in moderate to severe cold burns. "At Westad, we manufacture valves of the highest quality. What we actually deliver at the end of the day, however, is operational safety for the business activities of our customers, tailored to the demands of challenging and demanding environments – tankers and the high seas," reflects Jørn-Inge, adding: "We firmly believe that in order to convincingly provide safety, you have to first live it on your own premises and

in your production processes." And touring the test facility quickly confirms that the company takes its zero harm policy seriously: The test baths all feature railings to prevent personnel from accidentally falling into them. Furthermore, the stainless steel liquid nitrogen baths have been installed in a concrete pit below ground level, thus increasing the distance between a potential accumulation of the nitrogen gas and the colleagues themselves. Special heaters are in place to ensure that the ventilation system cannot freeze over, and sufficient space between the tanks avoids a nitrogen

build-up in the pit itself. O_2 sensors also play an important role in this set-up: If the oxygen level falls below 20 percent, an alarm is triggered across the entire factory, and the doors of the test facility automatically open to allow for the influx of air. Taking a multiple redundancy approach, the workers themselves are also equipped with personal O_2 sensors, and wear protective clothing similar to that of firemen. Working in pairs is mandatory to keep an eye on each other and emergency drills are conducted on a regular basis. Last but not least, the communal fire department and emergency services have also been extensively briefed and know what to expect in the event of an incident.

Flawless

Westad's new test facility has been in operation for about two years now. Cryogenic testing occurs there on a weekly basis and so far there have been no incidents. "Our primary concern is and has always been to ensure that all parties involved understand the risks and comply with the procedures and routines set up to mitigate them," summarizes Jørn-Inge, adding: "Looking at our track record, I think we can rightfully state that Westad takes plant safety seriously – both internally on our own premises, and externally with regard to the operations of our customers."



A cryogenic butterfly valve undergoes testing at -192°C

PRESSING BUSINESS

KLINGER Argentina safeguards reliability of hydropower plant



The Futaleufú hydropower plant

 **Hydropower, next to thermal generation, plays an important role in Argentina's energy mix. Responsible for around 36 percent of the country's electricity and featuring an installed capacity of 10.1 GW as of 2016, it is used for both industrial facilities and private households. Futaleufú, one of Argentina's hydropower plants in the south of the country, is no different in this regard. It was, however, also the site of a multi-company collaboration spearheaded by KLINGER Argentina to ensure that renewable energy can be kept flowing in the region of Chubut.**

KLINGER Argentina has over the years made a name for itself as a highly flexible troubleshooter and solutions provider for the country's potable and process water business. And projects such as for example restoring the supply of drinking water to the province of Santa Fe in 2017 have certainly helped to bolster its reputation. In terms of (literally!) going the extra mile, the Argentinian colleagues recently had to venture even further: To the Futaleufú hydropower plant in the province of Chubut, which is around 1,900 kilometers away from the company's seat in Buenos Aires. Their task: To apply their know-how and expertise in the water business to

consult the operator on the selection of the correct pressure reduction valves for his plant.

Futaleufú

Erected between 1971 and 1976, the Futaleufú hydropower plant features an installed capacity of 472 MW, which is generated via vertical-axis 157 MW Francis turbines. They are subsequently used to power four 118 MW generators. The electricity – on average around 2,900 GWh per year – powers an aluminum plant of the Argentinian company Aluar in the nearby city of Puerto Madryn. Excess energy, on the other hand, is fed into the grid and thus made available for public use. The plant itself takes its name from the river it dams near its source: Futaleufú, an indigenous Mapuche term, translates as "big river" and was also part of the problem encountered by the operator of the plant.

Under pressure

In order to remain operational, the water-bearing, critical components of a hydropower plant have to be shielded against a hydrodynamic effect known as cavitation. Cristian Gonzalez, Sales Manager at KLINGER Argentina, explains: "Cavitation is a phenomenon that occurs in tandem with rapid and significant pressure drops. If left unchecked, the generated shock waves can ultimately damage or

destroy critical components such as for example internal valves." He adds: "Our challenge was to come up with a valve that would prove to be both durable and reliable with regard to the specific flow and pressure conditions found at the power plant." Not wasting any time, the Divisions Industry and Water & Sewage of KLINGER Argentina initiated a cross-department cooperation and quickly identified the best product for the project. "As a leader in the field of sealing technology, we are fully committed to plant safety and reliability by providing our customers with solutions that best fit their individual needs," explains Cristian Gonzalez, and adds: "In this specific case we opted for pressure reduction control valves from the company Singer Valves, which KLINGER represents in Argentina."

Team spirit

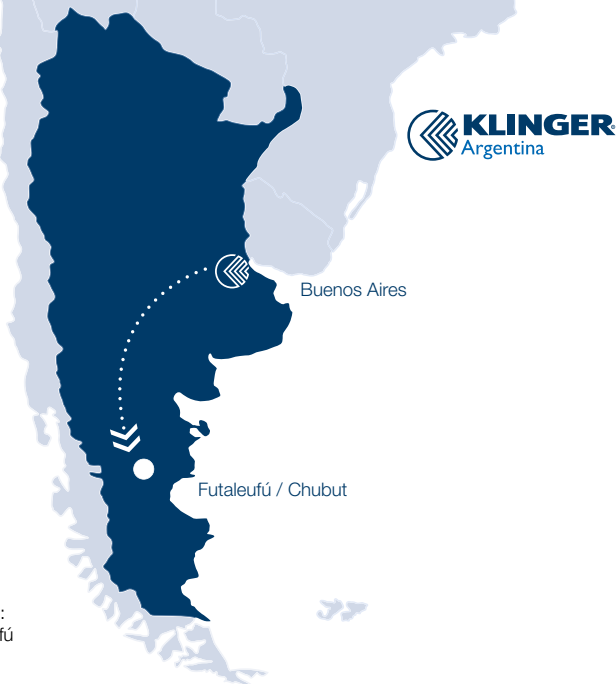
Completing the Futaleufú project involved the establishment of a multi-corporation engineering team under the leadership of KLINGER Argentina. In a first step, the colleagues were familiarized with the specifications of the selected pressure-reduction valve and critical stages such as integration and subsequent operation discussed in detail. The actual installation of the required four valves, one is additionally being kept in reserve, took place in January of this year and was carried out with flying colors.

Following the completion of the task, the plant operators can now again focus on their core business – the provision of electricity – without having to worry about potential damage to the critical components of the plant or blackouts resulting thereof. This has especially turned into a crucial factor as they are planning to replace the current 118 MW generators with 140 MW variants. Looking back on the project, Cristian Gonzalez had the following to say: "Being willing and able to collaborate across both intra-

company and intercompany borders is what ultimately led to the success of this project. Working together, we managed to ensure that a vital part of Chubut's industry can remain operational and that households in the region can continue to be supplied with excess electricity. This is what we set out to do, and what we travelled more than 1,900 kilometers to achieve. Speaking for both my colleagues and myself, I'd say the result, together with the feedback we have received from our customer, was well worth the effort."



Cristian Gonzalez (KLINGER Argentina) and Patricio Egan (Singer Valves) collaborating in the Futaleufú project



KLINGER Argentina goes the extra mile: 1,900 km from Buenos Aires to Futaleufú in the province of Chubut

KLINGER@ACHEMA

Strong presence at leading industry fair



Highly motivated: Our team of seven KLINGER companies exhibiting at the Achema 18

When it comes to trendsetting, international fairs for the chemical engineering and process industry, the Achema is without doubt the place to be. This year, KLINGER underlined its position as a leading sealing technology group by attending with no less than seven companies. Together, they represented the latest in gaskets, valves, instrumentation as well as expansion joints. Also on display: Industry-related innovations to further empower plant operators and a formidable digital offering.

Taking place from June 11 to 15 in Frankfurt, Germany, the Achema 2018 attracted around 145,000 visitors. According to its organizers, this is a slight drop compared to the 2015 figures of the fair, which is held triennially. For Christoph Klinger-Lohr, Group Executive Director of the KLINGER Group, however, the decisive factor is not quantity, but quality, and he has no complaints in this regard. "KLINGER's presence at the Achema 2018 extended across 271 square meters and brought us into contact with a significant number of existing and potential customers," he says, adding: "Considering that we were present with a total of seven companies that together covered a broad range of service and product offerings for almost all the industries we serve, I think it's safe to say that there was something for everyone." And the exhibiting companies KLINGER Dichtungstechnik,

KLINGER Fluid Control, KLINGER Schöneberg, Kempchen Dichtungstechnik, KLINGER Italy, KLINGER UK, and POLITEKNIK more than delivered on this promise.

Spectrum of innovation

KLINGER's motto for the Achema 18 was "Sustainability". On the one hand, it referred to the Group's plant safety contributions that help keep the environment protected against undesired emissions. On the other hand, it pointed to the "business sustainability" its customers enjoy, thanks to the renowned high quality and durability of the sealing technology expert's products and solutions. The innovative exhibits showcased included a double block & bleed variant of the proved and tested BALLOSTAR® KHA ball valve, KemShape – a kit that enables plant operators to create a print of damaged flanges without the aid of a third party, and a static gasket with an integrated thermal element, aptly



Clear lines, open space: KLINGER's booth at the Achema 18

named KemTherm. Also on display: KLINGER® KGS G II, the next-generation and revolutionary rubber-steel gasket, the intelligent valve INTECtalk that brings Industry 4.0 to the sealing industry, and the software suite CHOICE INTEC that supports plant operators in selecting the best ball valve and actuator fit for their applications. Last but not least, a dual-seal variant of the KLINGER Sentry Gasket, seismic expansion joints as well as the R50 glass level gauge and LED illuminators also caught the eye of visitors to the booth.

Interactive experience

According to both colleagues and guests, there was never a dull moment at the KLINGER stand. Its clear lines, intersected with ample open space, offered opportunities to conduct business, while its generous bar area served as the perfect place to strengthen relationships. A Running Sushi installation, also repurposed and put to good use at the exceptional KLINGER booth party, featured another way for customers to get an up-close look at what the Group of companies has to offer. Looking back at the fair, Daniel Schibli, Group Executive Director of the KLINGER Group, had the following to say: "Coming to the Achema is a must for us. It represents a great opportunity for us to showcase why we are an industry leader to a broad audience and to subsequently generate new leads. We would like to thank all our customers, visitors and guests for joining us at the Achema 18 and look forward to talking to you soon!"



In action: a live product performance of KLINGER gaskets

ON DISPLAY

KLINGER companies exhibit at European fairs

"trusted. worldwide." is the official slogan of the KLINGER Group. In order to promote the quality, reliability and resulting plant safety underlined by this claim, KLINGER companies attend both national and international fairs on a regular basis. KLINGER Fluid Control and KLINGER Gebetsroither are no exception in this regard and recently exhibited their products, services and solutions at important fairs.



Exhibiting efficiency

The En+Eff 2018 took place from April 17 to 19 in Frankfurt, Germany. Our resident ball and piston valve manufacturer, KLINGER Fluid Control, attended this international trade fair and congress for heating, cooling and combined heat and power (CHP) as an exhibitor. Asked about the significance of the En+Eff, Oliver Weber, the company's head of sales for Germany, had the following to say: "Seen from the perspective of a manufacturing company, the En+Eff serves two purposes. On the one hand, it is an important platform for meeting up with our existing clients and establishing new customer contacts. On the

other hand, our valve products and solutions play a critical role in ensuring that heating and cooling systems remain functional: Needless to say, this is primarily achieved by making certain that media flow where they are intended to. And as our company name implies, this is exactly what our products and solutions do." Held for the 23rd time, the En+Eff attracted approximately 1,800 visitors and featured around 100 exhibitors, mainly from neighboring countries such as Austria, Germany, Italy, the Netherlands and Switzerland. The fair also acted as the venue for various presentations and forums. The former addressed a wide range of industry-related topics, such as for example "The heating supply of the future – challenges and solutions", while the latter placed the exhibitors in the spotlight and enabled them to discuss their latest innovations.



Some like it hot

The IFH/Intherm, which took place in Nuremberg from April 21 to 24, focuses on sanitary, heating and climate technology as well as on renewables. Launched in 1976 and held every two

years, the trade fair has developed into a venue for decision makers of the respective industries. According to the organizers, the IFH/Intherm 2018 was visited by around 40,000 persons interested in seeing the latest innovations displayed by more than 600 exhibitors from 20 different countries. KLINGER Gebetsroither, our service & distribution company for valves and gaskets and manufacturer of a wide range of solutions for domestic homes, was one of them. "Our company has been a leading manufacturer of hot water and heat technology systems in Austria for 25 years," states Roland Bezenker, Product Manager Hot Water Units of KLINGER Gebetsroither, explaining why the colleagues from Austria exhibited at the fair, and adds: "We not only develop and manufacture the products, we also have our own team of technicians who take care of putting the solutions into operation and servicing them. This ensures a maximum operating life and best performance." The corresponding portfolio comprises, amongst others, domestic stations for hot water and/or heating, substations for district heating as well as district heating and combination boilers. Also on display: HIRA – KLINGER Gebetsroither's new heat technology and domestic hot water control actuator.



Andreas Schwarz, Jörg Pallinger, Jörg-Gregor Schmidt (Area Sales Managers Germany) of KLINGER Fluid Control at En+Eff 2018



Rene Wrabl (Area Sales Manager) and Roland Bezenker (Product Manager Hot Water Units) of KLINGER Gebetsroither at IFH/Intherm

ON EXHIBIT

KLINGER Finland at the PulPaper 2018



"Visit tomorrow today", the theme of the PulPaper 2018, brought a futuristic touch to an otherwise rather traditional industry segment. Held from May 29 to 31 in Helsinki, Finland, it attracted more than 9,000 visitors. KLINGER Finland, our local company with expertise also extending into the pulp & paper business, attended.

"The PulPaper features all the country's major players and offers numerous opportunities to get in touch with existing and new customers", says Miika Halminen, Sales Director Sealing Solutions at KLINGER Finland, explaining his company's presence at the fair. Our Finnish colleagues had actually shown up in force – its three

business units were all represented at the KLINGER booth. "The PulPaper is typically used as a sounding board for new services, products and technologies," says Miika, explaining both the motto of the fair and conference topics such as 3D printing, bio-economy, or the industrial Internet. "What most of these products and trends have in common, however, is that they all rely on high-quality components. And in this regard, we can offer our fair share," grins Miika, referring to the wide range of valves and gaskets KLINGER Finland had on display. Tailored to meet the specific requirements of the pulp & paper industry, they form an important cornerstone of the company's business. Coupled with KLINGER Finland's OEM

machine applications, which include product marking devices for various paper and board end products, they ensured that the three business units more than had their hands full during this year's PulPaper installment.



Visit tomorrow today: KLINGER Finland at the PulPaper 2018

FIELD TRIP



VTH sealing technology section visits KLINGER Dichtungstechnik

The VTH – Verband technischer Handel is the professional association for industrial distributors in Germany, Austria and Switzerland. Among its many activities are initiatives to bring potential customers and suppliers together, which is why a delegation of the VTH sealing technology section recently visited KLINGER Dichtungstechnik.

On June 20, 2018, more than 40 VTH members were treated to a tour of KLINGER Dichtungstechnik, which plays an important role as a sealing materials manufacturer and as an R&D hub within the Group. Next to a brief overview of the company and KLINGER in general, the participants had the opportunity to take a closer look at the calendar unit. According to Norbert Weimer, Branch Manager of KLINGER Germany and the tour's organizer, the visitors were highly impressed by the efforts undertaken with regard to

resource conservation. At KLINGER Dichtungstechnik, this includes the treatment and recycling of scraps as well as the recovery of the solvent used during the production process. Both measures contribute to KLINGER Dichtungstechnik's continued certification in accordance with EMAS, the eco-management and audit scheme of the EU. Next to sustainability, ISO 9001 and 14001-certified quality plays a premier role. Visiting the test lab and witnessing KLINGER's seamless quality

management for sealing sheets quickly convinced the delegation that these certificates were also well deserved. Norbert Weimer: "The factory visit was an excellent opportunity to showcase the excellence of our processes, our power of innovation, and the quality of the products that we can offer as a result thereof. I would like to thank the VTH in general as well as our participants for joining us on our tour of KLINGER Dichtungstechnik. I hope you enjoyed it as much as I did."



The VTH delegates line up for a photo during their visit to KLINGER

IN MEMORIAM

Remembering Frits Mühlenbruch



“Death is not the greatest loss in life. The greatest loss is what dies inside us while we live.

Norman Cousins

Friedrich Ferdinand Mühlenbruch

September 20, 1947

Frits

June 3, 2018

It is our sad duty to inform our readers that our former CEO and Member of the Supervisory Board, Friedrich Mühlenbruch, unexpectedly passed away on June 3, 2018. Frits, as he was known to his friends and colleagues, was born on September 20, 1947. After his education, he began his professional career in the sealing industry. Following the acquisition of PICOFF in 1984, and its integration into today's Dutch entity, KLINGER B.V., Frits became a valued member of our KLINGER family.

Respect and gratitude

An untiring business developer, Frits went on to assume multiple roles within KLINGER.

Joining Thomas Klinger-Lohr at the helm, he played a significant role in shaping and developing the Group's EU operations and was also appointed Chairman of the European Sealing Association, a post he held between 1992 and 1995. Highly respected as both a born leader and a friend, Frits was renowned for his ability to motivate and inspire colleagues and partners alike. Following his retirement as CEO in 2011, he contributed to the success of KLINGER as a member of its supervisory board until April 2018. During all his time at KLINGER, Frits always remained true to his motto: "Keep it simple, just do it. But bear in mind that it's always about people, customers and service."

Next to his business life, into which he invested a lot of his time, Frits was an avid golfer and very much interested in football and tennis, but always a team player in all of his endeavors, and a father figure to both his family and many of us here at KLINGER. As a Group of companies that will always remember Frits Mühlenbruch as a friend and colleague, and in no small part responsible for what KLINGER is today, our deepest condolences go out to his family, his wife Linda, his daughter Karin, his son Mark, and their families.

We mourn and share your loss. We will always remember Frits fondly.

