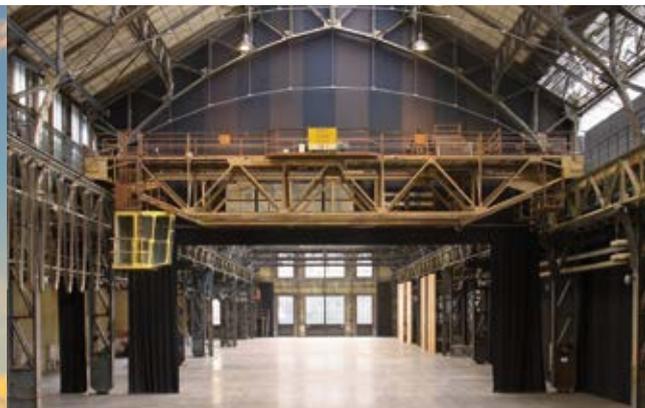




KLINGER NEWS

Group Magazine



EDITORIAL



The ACHEMA 2015, a world forum and leading show for the process industries, was held in Frankfurt, Germany, in June. It was our biggest exhibition in two years and showcased our latest innovations from the fields of sealing, fluid control and fluid monitoring under the motto "Full system control for smooth production". The articles from KLINGER Fluid Control, KLINGER Schöneberg, KLINGER Germany and Kempchen will give you the opportunity to catch up with what you may have missed at the Achema 2015. In this edition of the KLINGER News, however, you will not only be treated to our exhibition highlights: We would like to invite you to join us on our journey towards Industry 4.0., which also requires non-visible essentials such as gaskets and valves.

The first industrial revolution began with the invention of the steam engine in the 18th century. Industry 4.0 is said to be the fourth industrial revolution, introducing a paradigm shift over the next 15 to 20 years. It is expected to have a significant impact on most manufacturing companies but – to date – it remains unclear how the "smart factory" will look in detail.

It is generally understood that process driven businesses are key areas of Industry 4.0, although it covers much more than those, digital commerce being just one example. KLINGER is embracing such trends with ambition, but also with the necessary caution. We are at the beginning of a potentially transformational journey where we screen and analyze what those technologies have to offer, actions are then taken where they make commercial sense. Forward thinking is the cornerstone of our company culture and we are prepared to take the necessary steps for the future. Let us see if Industry 4.0 will be the next big thing of our time.

I hope you enjoy reading this edition of the KLINGER News.

A handwritten signature in black ink, appearing to read 'Ch. Klinger-Lohr'.

Dr. Christoph Klinger-Lohr
Business Development Director

IMPRINT

Publisher:
KLINGER Holding GmbH
Am Kanal 8-10 / A-2352 Gumpoldskirchen
Global Communications:
Miroslava Stanic

Layout:
vorauerfriends communications gmbh
Traunufer-Arkade 1, 4609 Thalheim bei Wels

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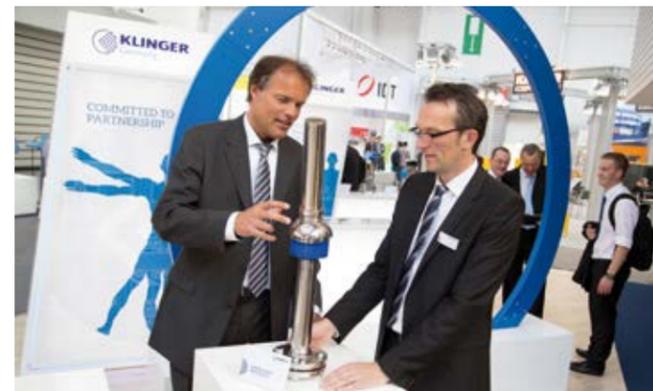
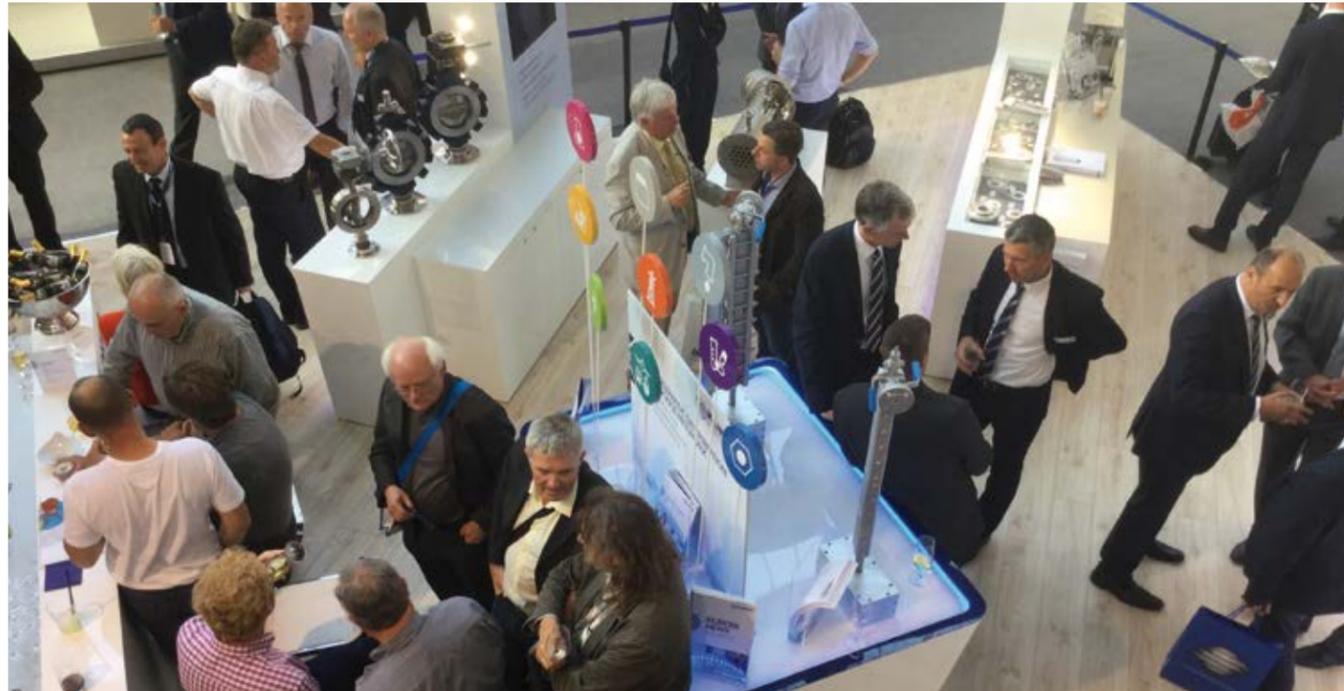
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ACHEMA

The KLINGER Group at the leading process industry fair



FULL SYSTEM CONTROL FOR SMOOTH PRODUCTION



KLINGER was again prominently present at the World Forum for Chemical Engineering and the Process Industry – Achema, which took place from June 15 to 19 in Frankfurt, Germany.

Exchanging & networking

High performance products and solutions are one aspect of our success, the other one is the close and long-term cooperation with our stakeholders. Our customers, suppliers and partners had the opportunity to meet, exchange and network with the international team of the KLINGER Group in a pleasant and friendly atmosphere.

"Full system control for smooth production" was the motto of this year's presentation. Perfect industrial valves and sealing solutions are critical and system-relevant components to achieve efficient and smooth production.

ENTERING NEW FIELDS

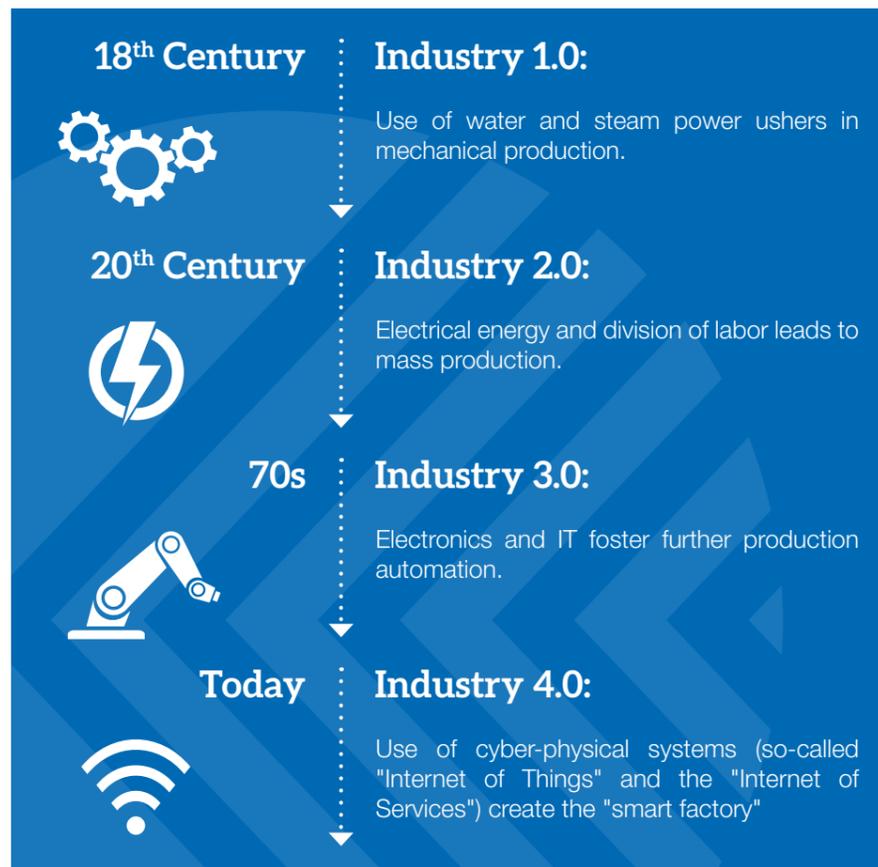
Industry 4.0 is the vision of the industrial production of the future



When discussing Industry 4.0, we talk about a paradigm shift – but what will this require and how will it affect the way we manufacture, maintain and do business within our industrial systems?

Technology advances have driven increases in industrial productivity since the Industrial Revolution: The introduction of water and steam-driven mechanical factories in the 18th century, their subsequent electrification that led to mass production and finally, the introduction of programmable logic controllers automated the industry in the 1970s. Since then, we have seen incremental industrial advancements, as opposed to a real breakthrough in the sense of true innovation. Now we once again find ourselves in a new wave of technological development.

The introduction of game-changing digital industrial technology, known as Industry 4.0, is dramatically reshaping the manufacturing landscape. Industry



4.0 is based on the concepts of cyber-physical systems, the so-called "Internet of Things" and the "Internet of Services". Within the smart factory, these cyber-physical systems have multiple tasks:

On the one hand, they create a virtual copy of the physical world they represent and monitor actual processes in real-time. On the other hand, however, they not only observe and report, but are also capable of making decentralized decisions. Communication of these systems with the real world, i.e. with human beings, and with other individual units, is established by means of the "Internet of Things". Last but not least, the "Internet of Services" facilitates participation in and utilization of services along the entire value chain.

Sounds like science fiction? At present, we find ourselves at the beginning of this fourth stage and nobody can predict what the smart factory of the future will look like in detail. However, there are already real-world examples of this new technology advancement.

Hands-on with the smart factory

Presented by SAP at Germany's leading high-tech fair, the "Open Integrated Factory Showcase", is an assembly line with a length of just 8.6 meters. At first glance, there is nothing remarkable about it. This impression, however, rapidly changes: First, it is capable of producing two wholly different products on the same line: A remote control or components for smart meters. Furthermore, one of the "products" can be produced in up to 16 different variations – again, all on this one assembly line. How does this work?

In essence, the components themselves have become "intelligent". Production parameters embedded in the work pieces "know what they are" and can communicate with the assembly line via RFID technology. Being transported section to section,

Industry 4.0:

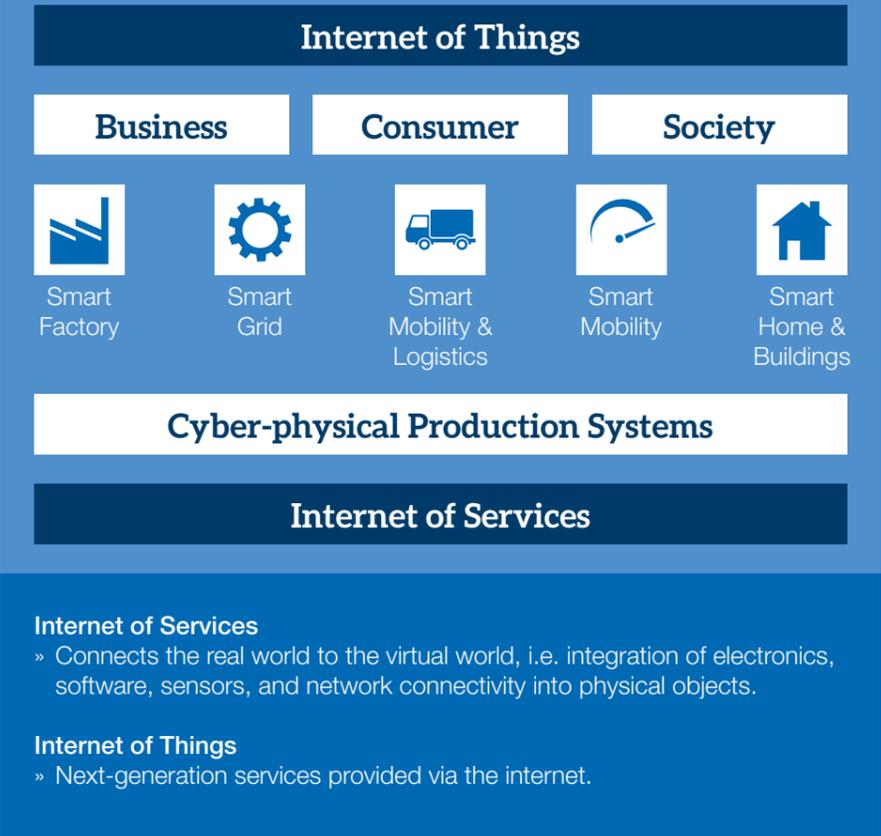
Vision:

- » Intelligent production methods and processes
- » Cyber physical systems as enabler for intelligent manufacturing
- » Intelligent work pieces and production modules support flexible processes
- » Digital consistency of engineering throughout the entire value chain

Environment:

In the factory of tomorrow, products and components will be able to tell you what is to be done with them. Cyber-physical systems will communicate with one another using the Internet of Things and of Services.

But Industry 4.0 covers more than just the "Smart Factory", it is also a social innovation with an impact on our current business models and the world we work in.



they "tell" the stations what part and variant they are, and request to be processed with the correct method. As a consequence, product variations can be manufactured in any given order and quantity – all on the same production line, thus allowing for lot

sizes of 1 to be produced at mass production prices. The essence of Industry 4.0 is reduced unit costs and flexible production by using digital manufacturing methods and processes. This will result in a whole new level of quality in industrial production.

CREATING THE FUTURE

KLINGER Schöneberg launches 'SMART Valve – INTECtalk'



Samuel Weber, R&D, KLINGER Schöneberg, explains the benefits of SMART Valve - INTECtalk

"Industry 4.0", i.e. the digital factory of the future, will be characterized by its adaptability, resource efficiency, ergonomic design and the integration of customers and business partners into business and value generating processes. The underlying technology is based on research into cyber-physical systems and the "Internet of Things". In order to achieve full system control, however, all the important components need to be capable of providing system-critical information in real-time. KLINGER Schöneberg is focusing its power of innovation on intelligent valves – in the course of the project "SMART Valve – INTECtalk".

Creating the digital factory of the future is an ambitious and at the same time a complex undertaking. Adhering to the principle of 'information is key', all the relevant parts need to be able to report their current status at any given time. For operators of process technology

plants, this means no longer having to rely on specifications provided by manufacturers or the results of complex and costly inspections, which only deliver momentary data on the basis of the current setting. While valves may not be at the forefront of the drive towards 'Industry 4.0', every plant operator will readily agree that they play a most important role when it comes to avoiding leakages and the subsequent potential for damage to man, machine and the environment. Enter the valve specialist, KLINGER Schöneberg.

The importance of being 'smart'

A smart system, such as the one proposed, must be able to log and analyze all relevant data. This not only covers information on the process itself, e.g. temperature of the medium or its pressure, but also data on the function and status of the valve. At present, obtaining function logs is a highly complex undertaking and

comes with major cost attached. Any plant operator who has had his emission values audited in order to prove compliance with applicable emission threshold values, i.e. the German Clean Air Act regulation – generally well-known as "TA Luft" as well as the standard DIN EN ISO 15848 (fugitive emission), will be very much aware of this fact.

Talking about INTEC

Launched in 2014 by KLINGER Schöneberg, the "SMART Valve – INTECtalk" project aims at significantly improving the quality of information regarding valve utilization. Together with its customers, the company has identified three relevant target areas to be addressed in the course of the project: The actual seal tightness of the valve towards its surrounding environment, the tightness in the port as well as its operational status. Furthermore, the to be developed



The "SMART Valve - INTECtalk" is equipped with sensors and logs the function and status of the valve

systems must be utilizable with all 90° valves with flange connections for drives in accordance with the standard DIN EN ISO 5211. And last but not least, the accumulated data must also enable operators to carry out prognostic assessments with regard to future availability, maintenance scheduling and replacement.

The future of leak detection

Following its completion, the revolutionary smart system will permanently detect leakages by means of a sensor system positioned directly at the operating stem port. For this purpose, a

shielded chamber will be installed over the head flange and capture the leakage from the valve. The highly sensitive system will subsequently measure the leakage and its amount, allowing for subsequent analysis by means of a downstream evaluation electronic system. In this manner, the system will be capable of measuring the amount of leakage without having to fall back on indirect measurement methods, for example by means of sealing pressure reduction. Monitoring the compliance with leakage threshold values will therefore be possible during standard operation and online. Furthermore, the solution will also allow for a prognosis of

the remaining lifetime of the valve. Also of great importance to operators: The leak detection innovation will not be limited to KLINGER products, but will be utilizable in tandem with every 90° valve by means of flange connections on both sides in accordance with DIN EN ISO 5211.

Monitoring of the actuation torque

With regard to valve utilization during standard operation, KLINGER Schöneberg is in the process of completing a sensor-based system, which will be inserted in automated INTEC products between the valve itself and the drive. The highly sensitive sensor unit, which is media-shielded, will measure and analyze the force generated by each movement of the drive. The torque will be permanently assessed with regard to the specific reference torque of the valve and will thus ensure a positive and early fault detection.

Winning features

"With INTECtalk we will be able to significantly contribute to increasing the 'mean time between shutdown' (MTBS) and at the same time avoid costs which would be incurred by maintenance, substitution or downtime," explains Samuel Weber, in charge of R&D at KLINGER Schöneberg, and adds: "Next to cost-saving, INTECtalk will offer its users a wide range of additional advantages: Among these are permanent status monitoring, independence from manufacturer certificates, the ability to plan costs and last but not least, a massive increase in plant safety – of great importance to both man and the environment."

BEST PRACTICE

Kempchen: Specialized in sealing technology



Kempchen – the German sealing specialist located in Oberhausen near Düsseldorf



Kempchen is the proud owner of the "KLINGER ON TOUR" truck



Customer service and training are part of Kempchen's success strategy

Faced with rigorous regulation and the ever-present risk of leakages, more and more companies are looking into other factors which "make or break" a successful plant. High quality products are one prerequisite. At the same time, know-how and expertise, which and how to use these products, play another vital role. Offering products the specific industry requires and the application know-how are the backbone of Kempchen Dichtungstechnik's success. The sealing specialist is further expanding its service offerings.

Kempchen has always taken a holistic approach: As a full service provider, this means that Kempchen develops and manufactures products, but also trains personnel to ensure maximum efficiency as well as correct and safe product utilization. The sealing specialist offers a wide range of services – both online and in person, and is always one innovation ahead of the competition.

Take, for example, Kempchen FireProtection, which the company showcased at this year's Achema fair. Developed for the field of plant safety, the product contains a special substance capable of expanding its

volume ten to 20 times in the event of a fire. The benefit: Sealing elements are protected significantly longer from reaching critical seal breach temperatures, which stand a great chance of leading to significant loss of assets and possibly even lives.

Apps, nowadays, are literally everywhere. We use them to track our latest jogging results, to read newspapers or to shop online.

Kempchen has taken the idea of the App one step further and introduced it as an on-site workplace aid. KemProof Pro allows technicians to compute screw tightening torques in five easy steps. The valuable helper which fits into your pocket and is always close at hand, takes a wide range of factors into account: Amongst others, DIN and ANSI flange types, additional loads, the screw type and material, pressure, temperature and the required leakage class. Last but not least, it also considers the coefficient of friction and the gasket type. KemProof Pro works with a computation algorithm based on AD 2000 Leaflet B7, and makes use of gasket values defined by EN 13555. The computation itself provides the torque as well as the optimal utilization of flanges, bolts and gaskets as well as the flange slope. Should the maximum



KemProof Pro: Online calculation program for tightening torques

slope be exceeded, the program will also notify the user.

A classroom near you

Correct installation is an essential factor for creating leak-proof flange connections. This requires both knowledge and a high level of expertise from the maintenance workforce. Training is one key component to ensure plant owners have access to the right personnel, with the right skills, and at the right time. For this reason, Kempchen provides a wide range of trainings for installation technicians as well as fitters and engineers. The installation training and certification according to DIN EN 1591 is also part of the Kempchen training portfolio. With the implementation of this norm, plant operators can now

select installation personnel on the basis of individual assembly and installation expertise. Kempchen offers courses in the form of e-learning modules as well as at its own training centers in Hamburg, Leuna and Oberhausen.

Take the truck

For customers who prefer personal on-site training, Kempchen has something new: As the proud owner of the "KLINGER ON TOUR" truck, the company now offers its customers a state of the art mobile training environment. It comes equipped with fully fitted workplaces in the vehicle's interior and allows employees to hone their skills in preparation for DIN EN 1591-4 certification on a wide range of different flange types and shapes without having to leave their own company's premises.

Kempchen Praxistage

Next to ensuring that a customer's employees are always best-prepared to handle their daily tasks, Kempchen also keeps you up-to-date on the latest developments in the industry: The "Kempchen Praxistage", an expert platform for professionals, was held in this year from May 6 to 7. With a record-breaking 225 participants in

attendance, it has now firmly established itself as a high-profile event. Featuring talks by representatives from Bayer Material Science, Shell Germany, Evonik Degussa, the Fraunhofer Institute as well as TÜV Süd Chemie Service, it offered in-depth knowledge as well as excellent opportunities for both networking and the exchanging of views.

"Kempchen has always seen its role as two-fold: On the one hand, we develop and provide our customers with state of

the art gaskets, packings and compensators. On the other hand, to maximize both product utilization as well as plant safety and efficiency, we see it as our task to offer our customers trainings, both in the classic sense and online," explains Dirk Schmidt, Head of Sales at Kempchen, and adds: "Our smartphone-based Apps also serve to underline our credo and have proven to be another valuable asset for on-site fitting."

Facts & Figures:

Kempchen Dichtungstechnik, a Germany-based KLINGER company, specialized in the development and production of gaskets, packings and compensators. Active since 1889 and part of the KLINGER Group since 2004.

Service Offering:

- » KemProof Pro free online calculation program for tightening torques
- » Installation training and instructions according to DIN EN 1591-4 and on-site ("KLINGER ON TOUR" truck)
- » Flange management
- » Shut down service
- » KemAnalysis : Professional analysis of sealing surfaces and flange connections



More information:
www.kempchen.de

BE SMART

KLINGER Fluid Control: Your smart solutions company



Within the KLINGER Group, KLINGER Fluid Control is the specialist for the manufacturing of industrial valves. Featuring flexible processes and production technologies, KLINGER Fluid Control supports customers in the fields of energy, district heating, the steel, chemicals and paper industry as well as refineries and gas distribution. Looking back at more than 100 years of successful development, manufacturing and sales as well as service, the company is preparing for the future by taking the "smart" approach.

Focusing on smart solutions is KLINGER Fluid Control's answer to a globalized and highly competitive valve industry.

KLINGER Fluid Control is ready to start a transformational journey to become a "smart solutions company". The idea is to provide solutions that create true

customer value based on a complete portfolio, excellent delivery performance and service expertise. This approach will ensure that the company is able to design, manufacture and deliver customized technical or logistical solutions – no matter how complex or demanding.

Modernization and investment

In order to keep this promise, KLINGER Fluid Control has invested heavily into the further expansion and modernization of the production location in Gumpoldskirchen, Austria. The investment of 3 million euros, alone for the year 2015, is being used to modernize the business location in Gumpoldskirchen and will put the company in a highly competitive position: After its completion, fully automated and flexible milling centers will allow for serial and tailor-made production on an industrial scale from a lot size of 1 upwards.

Quality assurance

Also of major importance: The company is now the proud owner of its very own multifunction test bench – unique in Europe. The test station is used to ensure compliance with both actual and future code requirements which are under preparation. This results in a faster time-to-market for new products and product modifications – a fact which will certainly be very much appreciated by KLINGER Fluid Control's trade partners.

“ We started our transformation journey in autumn 2014 and we will need to go through several phases of change before reaching our goal of a 'smart solutions company'. We are still at the beginning of our journey although we have already achieved a lot together! Our goal, under the header 'smart solutions', is to increase our global footprint, offer an encompassing portfolio, simplify business processes and provide world-class lifecycle services.”

Manfred Stockinger,
Managing Director
KLINGER Fluid Control



The new multifunction test bench ensures compliance of valves with the industry norm EN488:2014



Ball Valve KHI DN 400 in stainless steel with metal sealing elements for the pulp & paper industry



THE NEXT STEP

KLINGER Germany enhances its product portfolio



Presenting the new rubber gasket KLINGER KNS at Achema



In the industry, KLINGER Germany is well-known for high-pressure gasket sheets such as KLINGERSIL, KLINGER top-sil and KLINGER top-chem 2000. The company offers special gasket solutions for the supply of potable water, wastewater, gas, and is also a leading supplier for the automotive industry. Convinced that innovation is key, KLINGER Germany has looked at existing designs and come up with ways to make them even better.

Showcased for the first time at the Achema 2015, KLINGER Germany's new entry, KLINGER KNS is sure to have met with approval from visitors to the trade fair.

KLINGER KNS is a high-pressure rubber gasket, which can be disassembled into individual segments. This may not seem newsworthy, but it is: Both industry segments frequently require gaskets with a large diameter (DN 2000 to DN 4000). In addition to being complex in terms of production,

they often come with major packaging and transport costs attached, as a flawless delivery is imperative. In some cases, this may even go so far that the cost for transportation ultimately exceeds the actual gasket price.

Easy to assemble

KLINGER KNS can be disassembled into different components. As a consequence, it can easily be packaged and transported. In its assembled state, it consists of an outer ring, which can be ex-

ecuted in the form of various materials – from stainless steel to plastic. An elastomer sealing ring, delivered in one piece, is responsible for sealing. Due to its elastic properties, it can be folded upon itself, a state in which it does not take much storage space and which requires only a minimum in terms of packaging dimensions. As a result of KLINGER Germany's new innovation, customers can significantly reduce their transportation expenses and at the same time profit from simple and safe installation as well as a high degree of operation safety.

Soft revolution

The second product innovation on display at the Achema 2015 also represents a modification of an existing and proven product design: The KLINGER top-chem series.

This product series is valued by customers for its universally utilizable high-performance sealing materials and comes with a broad range of applications in the chemical and petrochemical industry, the F&B sector as well as in the production of pharmaceuticals. Due to its special filling material and

Facts & Figures:

KLINGER Germany offers special gasket solutions for the supply of potable water, wastewater and gas. Next to sales of products manufactured by the KLINGER Group, KLINGER Germany is also a leading automotive industry supplier.

Highlights at Achema:

- » KLINGER KNS
- » KLINGER top-chem2000 soft series

founded in
1995

25
employees



Idstein



More information:
www.klinger.de



manufacturing process, it offers unique properties – especially with regard to its high level of resistance to stress relaxation. KLINGER top-chem 2000 soft, the latest addition to the successful product range, takes this revolutionary design one step further: By adding closed-cell pores to the tried and tested sealant, the material acquires microcellular-rubber-like properties. As a result, KLINGER top-chem 2000 soft, as the name implies, is five times softer than its product base. During installation, this ensures a high degree of elasticity and plasticity even under minor loads. Following integration and reaching of increased operational temperatures, however, the resistance to stress relaxation is attained. In other words, KLINGER top-chem 2000 soft guarantees a perfect fit due to its elasticity and stands out due to its

durability and robustness in standard operation.

"After having already significantly expanded the area of application for PTFE flat gaskets with KLINGER top-chem 2000 some years ago, we are proud that the further development will now lead to an even greater scope of utilization," explains Norbert Weimer, KLINGER Germany's manager, and adds: "Next to absolute product innovations, it is also important for us to keep an eye on existing products and to adapt these to changing customer requirements. In the case of KLINGER top-chem 2000 soft, this means that using PTFE flat gaskets has now become even safer."

"LED" THERE BE LIGHT

Introducing the illuminated LED level gauge from KLINGER Italy



KLINGER Italy presents the new LED level gauges at Achema

For the KLINGER Group, the level gauge will always have a very special significance. Invented by Richard Klinger in 1886 and subsequently patented in 1890, it was one of the first inventions of the Austrian engineer and marked the beginning of a family-owned enterprise, which is now in its fourth generation and in the meantime present in 40 countries. KLINGER Italy, which recently proved its own pioneering spirit by launching a company-internal Kaizen, has applied its desire to improve to Richard Klinger's groundbreaking invention.

It is hard to imagine that a tool, which is as essential as the level gauge, will be celebrating its 130th birthday next year. The result of a young engineer's interest in the problems associated with glass tube indicators on steam engines, the not even 30 year old Richard Klinger used his profound knowledge of physics to design a water level gauge on the basis of the reflection principle.

Today, liquid level gauges are available for all kinds of industrial applications as well as temperature and pressure

ranges. For steam boilers and hot water, reflex gauges, mica-covered versions and bi-color gauges offer the best solution. In the process industry, gauges have to be even more resilient as well as resistant to temperatures between -196 and +400°C. Furthermore, they must

be able to cope with icing, and illuminators used for clear indication also have to be explosion-proof. As you can see, the "good old" level gauge has come a long way since its humble beginnings – although the principle of measurement still remains the same.

High-light

KLINGER Italy's new LED illuminator was first presented at Achema. A further development of the standard illuminator, it offers a variety of features. The most obvious benefit is easily explained: Thanks to the utilization of state of the art 12 Volt LED technology, it is significantly brighter than the standard product and also stands out due to a longer service durability. Additionally, with its stainless steel construction and opal glass window, it also takes up less space and is maintenance free. Available in the sizes IV to 4xVIII, the new LED illuminator from KLINGER Italy is guaranteed to make all your level indication requirements shine in a new light. The KLINGER LED Illuminator is compliant with IP66 and approved by the TUV SUD Italy.

LED Illuminator:

The new illuminator in stainless steel is powered by LED 12 Volt technology and makes a level gauge visible day and night.

Available sizes:

From size IV to 4xVIII, modular sections

Key benefits:

- » High contrast indication
- » LED has a long life duration
- » Viewer can see clearly from many positions (not angle-dependent)
- » IP 66-approved by TUV SUD Italy



FROM ALPHA TO PARTNER

KLINGER and ALPHA Group celebrate 30 years of cooperation



Formed by four classmates who graduated in chemical engineering, Alpha Group was officially registered on April 11, 1984, in Bangkok. At that time, KLINGER had already gained a foothold on all continents, but was far from being the international group it represents today. One of the first contacts they established was Alpha Group – a company which is still with KLINGER today, thirty years later, still going strong, and a most valued partner.

Right from the start, the founders of Alpha Group envisioned a company that would not solely focus on selling products from major high-quality brands. True, the product portfolio of Alpha Group ranges from "A" as in actuators to "W" as in water heating and mixing, but they also take pride in offering most efficient systems in the fields of heat transfer and process solutions. Needless to say, this approach is very similar to the KLINGER philosophy and the reason why the collaboration between the two companies now counts three successful decades.

Dual approach

Alpha Group is one of a few suppliers to provide both valve and sealing

products. Furthermore, they have displayed an excellent business sense for the developing market segments in Thailand, which are characterized by a high level of diversity – oil & gas projects are as common as investments into the pulp & paper and the sugar industry in the country.

Valued partner

"30 years ago, with regard to external service and distribution partners, KLINGER was still in an infant stage.

We were in the process of establishing contacts around the world," explains Dr. Klinger-Lohr, Head of Business Development of the KLINGER Group, and adds: "Looking back at these early contacts, some of them – and this definitely includes Alpha Group, proved to be the 'right catch'. Today, they represent a significant pillar of our credo and are part of our 'trusted.worldwide.' network. It was an honorable experience to celebrate the first 30 years of our successful partnership with Alpha Group."



From left to right: Chonvanich Orawan (Alpha Group), Christoph Klinger-Lohr, Surachai Auwattanamongkol (Alpha Group), Manfred Gossmann, Jürgen Wössner (both KLINGER Schöneberg)

HOT IN THE CITY

FRANZ GYSI AG and KLINGER hold 11th Swiss District Heating Conference in Vienna



Participants of the Swiss District Heating Conference



Vienna, the capital of Austria, is well known for its classic architecture and an abundance of sights – from St. Stephen's Cathedral to Castle Schönbrunn. Probably less known is the fact that Austria's largest city, with a population of almost 1.7 million inhabitants, also features one of the most extensive district heating supply networks in Europe. Franz Gysi, the Swiss partner of the KLINGER Group, has been offering Swiss district heating operators and planners the opportunity to tour these facilities.

District heating and cooling know-how

The program was kicked off with an excursion to the Spittelau waste incineration plant of Wien Energie. Three such plants serve as the primary heat generation sites in Vienna and process around 650,000 tons of waste on an annual basis for this purpose. "Fernwärme Wien", the district heating arm of the company, has a transport network of 1,100 kilometers at its disposal and provides heating for more than 340,000 households and 6,500

industry customers. This corresponds to a market share of roughly 36 percent.

Furthermore, the City of Vienna has also invested into the expansion of environmentally-friendly district cooling solutions over the past few years. The district cooling facility, also located at Spittelau, transforms hot water via an absorption refrigerating system into cold water with a temperature of around 5°C. The unit boasts a capacity of 17 megawatts, which amounts to the refrigeration power of 115,000 standard household refrigerators. Already



Visit to KLINGER Fluid Control's production site in Gumpoldskirchen



Inside the district cooling plant of Wien Energie

operating at a utilization capacity of 80 percent, the main customer is the Vienna General Hospital.

In addition to district heating and cooling insights, the delegates were also given the opportunity to inspect the control center responsible for maintaining the primary network. This "heart of the facility" is fitted with state of the art measurement and control technology, and manages the entire heating demand of the city. Furthermore, it is constantly connected to various meteorological stations, as every single degree of erroneously programmed temperature results in 50 to 60 MW less power.

Arsenal – the latest addition

After having all their questions answered at the Spittelau business location, the Swiss delegation also visited Wien Energie's newest facility, the Arsenal district heating site. This new futuristic building was completed in a record-time of less than two years and includes state of the art equipment and a wide range of products and solutions supplied by KLINGER. The role within Wien Energie is to serve as a peak load heat generator.

Powered by two boilers, which can either be fired with natural gas or fuel oil, it can supply more than 70,000 households with district heating. The plant also has a supportive function: A large hot water storage tank ensures that major temperature or water fluctua-



The modern Arsenal district heating facility in Vienna

tions can be balanced at any given time. The plant is controlled from the Spittelau control center.

KLINGER and Fernwärme Wien

Both companies have been working intensively together for decades. A detailed look at the installed equipment brings thousands of district heating ball valves to light – all supplied by KLINGER and offering both long-term utilization and the highest levels of quality. As a consequence, the second day of the program included a tour to the KLINGER plant at Gumpoldskirchen in Lower Austria.

The participants were shown insights into the production of district heating valves and seals made of rubber-fiber composites. In addition, Manfred Stockinger, Managing Director of KLINGER Fluid Control, also described to the participants the journey to a

"smart factory" which means investment into state of the art production facilities.

Franz Gysi, CEO of FRANZ GYSI AG, summarized the event as follows: "I am convinced that we have again in this year been able to offer our participants a highly interesting mix of insights and information regarding district heating in Vienna. This type of knowledge-sharing, with one of Europe's largest energy providers – Wien Energie – is a unique event." Addressing the "soft" aspects of the conference, Franz Gysi explained its additional value for the attendees: "Being able to network with colleagues from the field, allows the experts to exchange views and profit from each other. The Swiss District Heating Conference, organized by Franz Gysi and KLINGER Fluid Control, is therefore a 'must' on the annual calendar of the Swiss district heating experts and will continue to be so in the future."



Dr. Christoph Klinger-Loehr attended the conference as well



The Swiss group at the Spittelau District Heating Plant

QUANTUM LEAP

Thermoseal provides an alternative sealing solution to a leading customer

How to replace asbestos gasket materials? Thermoseal Inc., the US-based KLINGER company, supported a leading North American chemical manufacturer of caustic soda, liquid chlorine, hydrogen, ethylene dichloride and vinyl chloride monomer located on the Texas Gulf Coast with this topic.

Initially tasked with replacing asbestos gasket materials, due to associated risks, costs and quality issues, with a proven solution, a recommendation to use a Monel corrugated semi-metallic gasket "faced" with graphite was offered by a local source. Due to delivery and cost considerations, the decision to opt for a stainless steel core was ultimately reached. Or at least this is where the story might have ended if not for Thermoseal's initiative.



agreed to conduct his own field tests with the new product. The actual tests took place during the fourth quarter of 2014 and involved several 1/16 inch and 1/8 inch thick gaskets.

With flying colors

With Thermoseal in attendance during installation and removal, the results provided by plant engineering and field technicians were more than satisfactory. KLINGER Quantum displayed remarkable results in all areas tested. The following benefits even exceeded those in previous products. First, the ease of gasket installation – which

required no special procedures. A field technician was even quoted as saying that it would have been possible to "re-use the gaskets".

Furthermore, upon examining the used gaskets, the experts found no indication or traces of a chemical attack – neither inside the sealing diameter nor on the sealing surface area of the gasket. Last but not least, KLINGER Quantum also convinced the customer both in terms of cost reduction, almost a 50% savings, as well as with regard to availability.

Since then, eight months have passed. During this period, the customer has successfully used KLINGER Quantum as a replacement for the semi-metallic gaskets, corrugated stainless steel faced with graphite, in the process filtration baskets. According to Thermoseal, however, this is just the start – the maintenance engineers at the facility are apparently already looking for additional areas where they can put the new product to use.



Quantum matters

The KLINGER Quantum gasket material was introduced during the third quarter of 2014. Having extensively reviewed both the product characteristics and the specifications, Thermoseal soon realized that this was precisely what their customer was looking for. Provided with test data, including an API 607 fire certification, chlorine and thermal gravim analyses (TGA) as well as KLINGER expert evaluations and information on potential cost reductions, the customer

About KLINGER Quantum:

KLINGER Quantum is a gasket developed for use at higher temperatures than all other compressed fiber materials. Working with new manufacturing procedures has enabled the company to produce the next generation of sealing material using Hydrogenated Nitrile Butadiene Rubber (HNBR) as a binder.

Features:

- » Simple handling
- » Exceptional chemical resistance
- » Maintains its flexibility even at high temperatures
- » Extended application range of material style than ever before
- » Unique flexibility even after prolonged use at 350°C (commonly compressed fiber material limited to below 200°C)
- » Fire-safe to API 607, TA-Luft (Clean Air) approved and Chlorine tested

KLINGER SPOTLIGHT

Dominic Schuller - our Ultramarathon runner from Austria



bike or go sailing, but Dominic found a special discipline that fascinates him: Ultramarathons.

Ultramarathon Runner

An ultramarathon, by definition, is any footrace longer than 42.195 kilometers. While the distance itself already seems daunting enough, these races can also go across mountain ranges with significant changes in altitude and other obstacles sure to bring you to your utmost limits.

Every day, KLINGER employees around the world support our customers with expertise, integrity and passion. Being enthusiastic about your job is a key ingredient to guarantee the success of our customers – everybody, however, also has a personal life and these "private interests" give each of us the energy to go that extra mile in our job.

This time we would like to introduce you to Dominic Schuller, our Austrian "Ultraman" from KLINGER Gebetsroither.

Dominic Schuller joined KLINGER Gebetsroither in 2013. This was, however, not his first encounter with the KLINGER family. "When I was 15, I had a summer job at KLINGER Gebetsroither, which I enjoyed a lot," remembers Dominic, "it definitely left an impression and has a lot to do with why I am here today." At the business location Wels, Upper Austria, he is part of the office-based sales force, and specializes in valves with a focus on automation. "What I like about working at KLINGER Gebetsroither is the fact that I have a high degree of independence when it comes to how I do my work," explains Dominic, "I can choose my own approach and learn how I can help our customers even better." Taking his own path is also something the recently turned father of a three-month old daughter does a lot in his spare time. Some of us may go jogging to attain a certain degree of work-life-balance, others might ride a

Take, for example, the ultramarathon Dominic attended at the end of August: The "Ultra-Trail du Mont-Blanc" is a mountain race which spans around 170 kilometers and 10,000 meters of positive altitude change. The best runners complete this course in less than 21 hours, the maximum time allowed is 46 hours and 30 minutes.



Dominic at the Ultra-Trail du Mont-Blanc: 170 km, 10,000 m difference in altitude

How does one even manage to get to the finishing line, let alone achieve a competitive time? "What you have to understand is that 50% of completing an ultramarathon happens in your head," explains Dominic, "when literally every part of your body hurts, your mental capabilities are the only thing that keep you going." In other words, Dominic Schuller remains in full control of his mind and body – possibly another reason why he can relate so well to KLINGER's "full system control" approach.

"A bit" of cycling

When talking to Dominic, you immediately realize is that he is a very modest person. Asked how he keeps in shape for challenges such as the "Mont-Blanc round-trip", he answers with "running, hiking and I ride to work on my bicycle." And the distance to KLINGER Gebetsroither? "Around eight kilometers," is his answer. Surely that can't be enough, we wonder? Dominic admits: "Well I do take a bit of a detour, so by the time I reach my office, I'll have done between 60 and 70 kilometers."

Due to his demanding training regimen, calories are easily burned up. "It's true, I can eat whenever and as much as I like to, but I usually try to focus on high-value food, such as for example fruits, vegetables and cereal-based foodstuffs," explains Dominic.

Business asset

Dominic Schuller firmly believes that his hobby also helps him in challenging situations at work. "When you train for and run ultramarathons, you are familiar with extreme bouts of exhaustion and sometimes find yourself in very bad moments," he reflects, and adds, "you learn patience and the importance of remaining on course. In the business world, overcoming these adverse situations by remaining focused may well help you in finding the optimal solution for your customer."

PARTNERING UP

KLINGER Finland is Honeywell's Channel Partner in Finland



 **Committed to providing its customers with a full-spectrum approach to their industrial processes and applications, KLINGER Finland has entered into a partnership with Honeywell Process Solutions, a company focusing on a wide range of process-related fields, including advanced software, control monitoring and safety systems.**

Director for Finland and the Baltics, Honeywell Process Solutions, and adds: "We are very excited about this collaboration with KLINGER Finland to offer quality field products at competitive prices."

First of their kind

Honeywell's range of field instrumentation devices consists of products and systems

that help companies to improve the management of their plants and at the same time optimize operation. Take, for example, Honeywell's SmartLine range of pressure, level and temperature transmitters: As the industry's first modular and most reliable transmitters, they deliver total value across the entire plant lifecycle by using guided wave radar (GWR) technology to monitor the respective

ranges. The products are characterized by improved performance, modular construction, advanced displays and optimal integration features. They help to reduce project costs and start-up times, avoid unplanned downtimes, and improve the product quality. The result: An extensive spare parts inventory is no longer necessary and time to repair cycles are also reduced. Overall, they fully meet the demands of KLINGER's full system control approach and guarantee smooth production.

"Industrial field instruments are a perfect addition to our product portfolio and enable us to meet the requirements of our customers even better than before," confirms Markku Ivanoff, KLINGER Finland's Managing Director, and adds, "With its field instruments, Honeywell is the undisputed technology leader in the market. And therefore a perfect match for our values and quality expectations – especially with regard to full system control."



Honeywell's SmartLine transmitters reduces complexity along the entire lifecycle. The range consists of level, pressure and temperature transmitters.

Facts & Figures:

Honeywell developed the first autopilot flight control system in 1914 and was also responsible for the first commercial weather radar system, commissioned in 1954.

Honeywell's technology is used to produce 40% of the world's liquefied natural gas, 60% of the world's gasoline, 70% of the world's polyester, and 90% of the world's biodegradable detergents.

\$ 40.3 billion
in sales 2014

Business Units:

- » Aerospace
- » Automation and Control Solutions
- » Performance Materials and Technologies

1,250 sites
70 countries



127,000 employees



Contract signed between KLINGER Finland & Honeywell Process Solutions
From left to right:
Andras Szabo, Honeywell Process Solutions EMEA Europe, Markku Ivanoff & Tatu Lastikka, KLINGER Finland, Aron Cseke, Honeywell Process Solutions

EMPOWERMENT

KLINGER Argentina restores operational status of Manuel Belgrano power plant



The Manuel Belgrano thermoelectric power plant in Campana (ARG)



Facts & Figures: Argentina

2nd largest country in South America

43 million inhabitants

Economy:
 60 % Services
 29.5 % Industry
 10.4 % Agriculture

Successful and smooth installation

Thanks to the intense preparatory work, the installation of the new components was smoothly carried out by the plant engineers. Needless to say, KLINGER Argentina was on-site during the entire operation to ensure success. And because "full system control" also includes the persons who operate the corresponding systems, KLINGER Argentina has also trained the staff in the correct utilization and maintenance of the installed components.

As a consequence, the plant named after the national hero can now once again contribute to an efficient energy supply for the country.

As Latin America's third-largest economy, Argentina is characterized by a high energy demand, with a per-capita energy consumption second-largest only to Venezuela. The electricity mix is dominated by thermal power. A significant share is supplied by the Manuel Belgrano thermoelectric power plant, contributing 5% of the total power demand in the country. When the facility suddenly experienced both water and power losses, KLINGER Argentina was quickly on-site to look into the situation.

and control system, all supplied by Siemens.

The Manuel Belgrano thermoelectric power plant, also known as TMB, stands for efficient power generation and, furthermore, actively contributes to ecological preservation. The El Morejón Natural Reserve, an area of 110 hectares of lagoons and grasslands typical for the Pampas eco-region, is under the stewardship of the plant operator, Termoeléctrica Manuel Belgrano.

Lay of the land

Even the best-conceived plant, however, can run into trouble when external

factors come into play.

In the case of Manuel Belgrano, these did not originate with the plant itself, but from the aqueduct which supplies it with cooling water from the Panama river. Featuring a length of 8 kilometers, this waterway passes various natural and man-made obstacles, most importantly a major highway which connects Buenos Aires with the city of Rosario.

And this is where the problems started: The route is heavily frequented by large Trucks, causing vibrations to be transmitted through the substrate and into the aqueduct. The involved motive forces subsequently led to

the shifting of various pipe sections, culminating in water loss and therefore reduction of both cooling water and overall plant performance. After unsuccessful attempts to remedy the problem on their own, the operators turned to KLINGER Argentina for help.

In-depth approach

In order to tackle the problem, KLINGER Argentina undertook a detailed analysis and teamed up with Viking Johnson, a world leader in the design and manufacture of couplings, flange adaptors, and pipe repairs products as well as specialist joints and flow control system solutions. Various items were finally selected to ensure that full system control could be restored to the plant.

First, flange adaptors from the AQUA-GRIP series, which offer an exceptional grip, are highly durable and feature excellent corrosion resistance properties. Second, dismantling joints for full-range sealing and last but not least, EPDM couplings coated with Rilsan, which ensure a long product life, a smooth surface for optimal flow characteristics and even comply with the most demanding drinking water regulations.



Energy efficiency ensured after successful installation of the new components



Teamwork to find the reasons for energy and water losses

THE SPECIALISTS

KLINGER UK Projects Division for full system control



The **KLINGER UK Projects team** is an integral part of the company and active around the world. Characterized by a focused way of conducting business with engineering and construction customers on a global scale, the department is dedicated to offering the best complete service package.

In 2001 Alan Bates, the KLINGER UK Chairman, had the idea to create a "special unit" that provides engineering, procurement and construction contractors (EPCs) a fully integrated service solution. This led to the formation of this department:

The KLINGER UK Projects team.

The Projects Division handles all aspects of inquiries, from initial bidding through to the final delivery. The department is organized into different teams, capable of covering all necessary aspects to deliver full project support. A specialized engineering and commercial team finds the best sealing solution. A documentation team makes sure that the completion of vendor documents is delivered. Last but far from least, a specialized expediting team guarantees the on time delivery.

Complete support

Once the project has completed the EPC stage, the specialists also handle the entire aftersales support and maintenance as well as the setting up of local manufacturer or agent services to ensure future supply. Being able to wear the coveted "Projects" badge, however, is not for everyone: "Projects" personnel are very experienced in supplying sealing materials for major contracts. Furthermore, in order to be a part of the team, they have to have been involved in many new build contracts for onshore – from grassroots refineries, onshore gas plants, various chemical plants and up to pharmaceutical installations – as well as in offshore projects, both concrete and steel jackets/platforms, subsea installations and FPSOs. At the end of the day, the success of KLINGER Projects is a combination of sound technical expertise and state of the art manufacturing provided by the Bradford business location.

Long-term support

It could be said that "Projects" is used to playing the long game: They often work with EPC engineers and

estimation teams for several years prior to the actual placement of an order. In practice, this means that a successful projects engineer collaborates with different teams from the FEED (Front End Engineering Design) stage to the final stage, which implies ensuring that a local KLINGER representative is in place once the plant is up and running. Needless to say, this involves being in constant communication with the various players, and in many cases, continuously on the move.

Follow the customer

The life of a KLINGER Projects team member is without doubt many things, but never dull. Take, for example, Ben Evans, who joined the "Projects" team in 2004.

As a long-standing member of the team, he has fully immersed himself in the all-encompassing EPC projects world.

In the course of his first assignment, he worked across three different continents and was responsible for setting up the ongoing supply through a local factory, which was masterminded with his help. "When I first joined 'Projects', I was

tasked with following a major project development in Angola. At the first stage this meant visiting the EPC contractor responsible for the FEED on the project. This involved visiting London, UK, the first continent on my list, to meet with the engineers and help them put in place specifications that would be required in order to find the right sealing solution," recalls Evans.

Following the completion of the FEED, the construction of the platform was awarded to a major Korean shipbuilding company. For Evans, this resulted in regular visits to Korea to help the shipbuilder to understand the specifications and KLINGER was given the opportunity to supply the gasket package. With the platform complete, it was shipped to Angola. "To ensure continuity of supply and allow KLINGER to provide ongoing maintenance to the project, I then assisted our Angolan partner in setting up a local manufacturing facility," explains Evans, and adds: "The KLINGER Angola facility is backed by our Projects team and the state of the art manufacturing facility in the UK. In this manner we ensure that the high level of service and product quality – synonymous with the KLINGER brand – is maintained". The above case, which is only one of several KLINGER UK Projects references, clearly shows how the team is able to offer full system control and at the same time provide added value to the customer.

The success story, however, does not end here: Most recently, KLINGER UK Projects has opened an office in Houston, USA, to meet the demands of one of the largest EPC hubs in the World. The Houston branch works in unison with the UK office in order to offer customers a complete service on an even broader geographical scale.

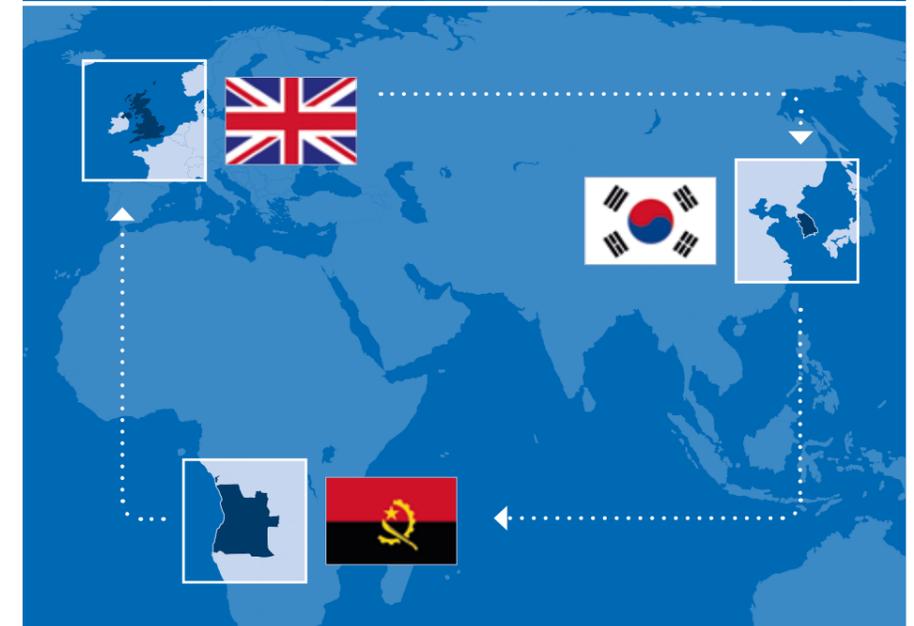
KLINGER UK Projects Team Mission Goal:

KLINGER UK Projects Team - Mission Goal:

- » Deliver high quality sealing products and full service solutions from initial bidding to final delivery

Project management includes:

- » Technical review
- » Order acceptance and processing
- » Production scheduling and control
- » Documentation as well as certification



Ben Evans with the Projects team in Angola

EVENTS

KLINGER Group attend major fairs in 2015 as exhibitor



Kormarine 2015
Oct 20 – 23 » Busan, Korea

The Kormarine is one of the leading marine industry events and brings members of the international maritime industry to Korea on a two-yearly basis. With more than 100 years of experience in the marine industry, the KLINGER Group will present its complete marine product portfolio at this international high-profile fair.

More than 40,000 visitors from 80 countries are expected to attend this year's installment. The four-day event in Busan, Korea, will feature 1,200 companies from 40 countries. Traditionally, the Kormarine focuses on the maritime industry, shipbuilding as well as on offshore engineering. This year it will also feature its own oil & gas pavilion.

The KLINGER Group, in the form of its companies Westad and KLINGER Denmark, will be on-site to showcase their specialized valve and gasket solutions.

KLINGER Marine at Kormarine

KLINGER Marine combines the expertise of different KLINGER companies into one industry force. Our offer covers various fields of activity, from FPSOs to bulk carriers and from LNG tankers to container vessels. Given the complexity of the marine industry, each area has its own specific characteristics. The aim is to provide a holistic approach regarding fluid control and monitoring packages, thus ensuring that the requirements of the most demanding applications on vessels and platforms are met. This time, Westad and KLINGER Denmark will highlight their Marine solutions and know-how. Westad is a Norway-based manufacturer of high-performance butterfly valves. Its contribution to the industry force is expertise in the field of liquefied natural gas (LNG) as well as in liquid petroleum gas (LPG) solutions.

KLINGER Denmark, on the other hand, is a trusted and certified supplier of valves as well as sealing and level

gauges. Both companies provide high quality and comprehensive solutions to the marine industry. Their offering is rounded off by profound know-how and experience from technical experts – 24 hours a day, 365 days a year.

Home match

For KLINGER, exhibiting at the Kormarine 2015 will also be a form of coming home: SPECS, the KLINGER partner company in Korea, has been active since 1970 and maintains strategically placed offices in Seoul and Busan.

Providing services in the fields of sealing, fluid control, system and overall marine solutions – all highly relevant for the Korean market – it is the perfect partner for both the Group and local EPC contractors. In this capacity, SPECS is largely responsible for KLINGER's success as a key supplier of quality products in Korea.

More infos: www.kormarine.com

Republic of Korea:



Capital: Seoul
Administration: 9 provinces & 7 metropolitan cities
Flag: "Taegukgi" refers to the Yin and Yang halves of the circle in the center of the flag. The four trigrams represent the four elements.
Legal: Mixed legal system combining European civil law, Anglo-American law, and Chinese classical thought

world's **13th**
largest economy

99,720 km²

49
million inhabitants



Leading Industries:

ICT, electronics, semiconductor, automobile, shipbuilding, steel, petrochemical



Shipbuilding:

Korean shipbuilders ranked 1st globally in terms of orders, ship completion and order book



ONE-STOP FOR THE MARINE INDUSTRY



The KLINGER Group provide a unique range of products and services to the Marine industry. We offer:

- » High performance products: Valves, gaskets, level gauges
- » European manufacturing quality
- » Primary solution provider to shipyards, ship owners, OEM



KLINGER at the DIAM 2015
Nov 4 – 5 » Bochum, Germany

Combined conference and fair with a focus on high-tech valves

The "Deutsche Industriearmaturen Messe", abbreviated DIAM and roughly translated as the "German industrial valve fair", is a trade fair with a focus on industrial valves, drives, accessories and installation engineering. The DIAM has a dual event character: On the one hand, innovative high-tech products will be on display, on the other hand, the fair will offer networking opportunities, presentations as well as the exchanging of ideas, know-how and contacts.



Event location in Bochum (GER)

Kempchen, focusing on sealing technology solutions, and KLINGER Fluid Control as well as KLINGER Schöneberg, with its wide range of industrial valves, will be exhibiting their products at the fair.

More infos: www.diam.de

