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KLINGER
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KLINGER YEARBOOK

Providing solutions since 1886



www.klinger-international.com





Christoph Klinger-Lohr, CEO
Daniel Schibli, CEO
Peter Müller, CFO

Dear Customers,
Dear Partners,

We hope that this issue of our YEARBOOK finds you healthy with hope in your hearts!
We know that the past year, once again, has been challenging for all of us.

So, first of all, we'd like to give a shout-out to all of you who worked alongside us as reliable customers and partners, successfully overcoming the obstacles of working from home and juggling unforeseen events that occur during a pandemic.



#StandWithUkraine

Shortly before the editorial deadline for this issue, we were emotionally struck by the sudden events in Ukraine. We are sure they have affected you as well. We wish with all our heart that peace and stability will soon return to Europe. Until then, we at KLINGER will ensure stable supply chains as we have always done for over 130 years. Because the greater the challenge, the more you can rely on us to be there for you.

Why is that so, you ask? Well, as the management of the KLINGER Group, we recognize the importance of strong partnerships and working together to find solutions. For only together can we make the world a better place. It is precisely this positive spirit that we would like to share with all of you in this YEARBOOK.

We are proud to report that we have reinvented ourselves in several areas. These changes have benefited our team as well as our customers and partners. To give you a few examples: We have further automated and digitized our manufacturing processes (see pages 14 to 16 for the digitization of our sheet production and read more on page 26 about how we implemented an extremely effective PLM system at our Norwegian location KLINGER Westad). We were able to launch new, innovative products (check pages 18 to 21) and improve our services (more details on page 35). Lastly, and maybe most importantly, we have succeeded in improving our ecobalance. In fact, we're dedicating an entire section of this YEARBOOK to our green agenda starting on page 29. That's only a fair share, since we firmly believe that new environmentally friendly technologies like district heating (page 42) and geothermal energy (page 32) are just around the corner, waiting to take over on a large scale.

This is what we stand for at every single location of our global network. Let us hold on to our courage and work together to find solutions to make this world a better place.

Christoph Klinger-Lohr	Daniel Schibli	Peter Müller
CEO	CEO	CFO

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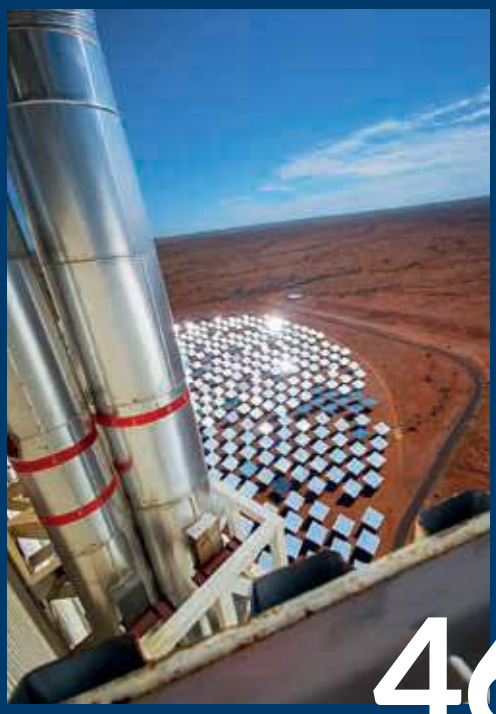

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5 QUESTIONS

? What do a Swiss Army knife and KLINGER's new Ballostar KHA have in common?

» **Find out on page 21!**

? Which type of energy supply potentially saves as many tons of CO_2 annually as all of Vienna's automobile traffic emits?

» **Read more on page 42!**

? Why do Iceland's hot springs require special valves?

» **Find out on page 32!**

? Who covered 1.5 million kilometers in the course of his career to meet KLINGER customers?

» **Meet our well-travelled colleague on page 23!**

? What does SCADA stand for?

a) An experimental opera house, side project of Milan's SCALA
b) The Scandinavian version of the Czech car "Škoda"
c) A highly intelligent AI tool, optimizing KDT's workflow

» **Think you know the answers? Check on page 15.**

KLINGER Group

Good news!

You are holding the latest edition of the KLINGER Yearbook in your hands and can see that we have a lot of good news for you! We continue to ensure supply chain security, more sustainability, and digital processes with forward-looking projects.

We have used the past months and years of coronavirus-related lockdowns and restrictions to position ourselves even more solidly. In our current cover story and in-depth interview with our CEOs, we want to give you an overview of what's new.

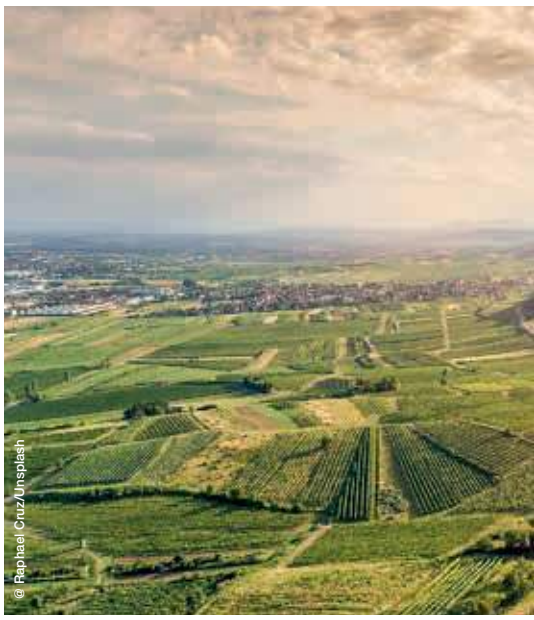
Let's go digital!

Let's start at our headquarters in Gumpoldskirchen, Lower Austria. Even behind our historic walls, we have long embraced the modern times. When we at KLINGER Dichtungstechnik (KDT) took giant steps towards Industry 4.0 in 2021, product quality was always our top priority. In order to digitize the quality assurance processes at KDT by the end of the year, we first had to upgrade all of our machines to the latest state of the art.

"In a second step, we then created our own future-proof industrial network, which is designed to handle very large amounts of data," says Ernst Schäfer, Technical Managing Director of KDT Gumpoldskirchen. "As early as the planning phase, we made sure that sufficient bandwidth would always be available in the future as the volume of data increases. In an emergency, the network will also work completely independently and disconnected from the service provider, and even in the event of a network failure, we can still access all of our data."

Thinking ahead means linking innovative strength and sustainability.

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In 2021 KLINGER Dichtungstechnik (KDT) took giant steps towards Industry 4.0.

David Karnthaler uses SCADA software to closely monitor all parameters of the TopChem PFTE sheet production.

The new digital age allows for comprehensive calender monitoring to ensure top quality for KLINGERSIL sheets.

Customer benefit: A solid production process ensures reliable deliveries. A big plus for the customer is that customized requests can now be implemented even faster, thanks to digitization and automation.

You can find out more about digitization and the visit of the Austrian Digitization Minister Margarete Schramböck to the KLINGER factory in Gumpoldskirchen on page 14.



Staying green: In a picturesque location among the vineyards of Gumpoldskirchen near Vienna, KLINGER Dichtungstechnik built a regenerative post-combustion plant capable of reducing CO_2 emissions by 150 tons per year.

Sustainably produced

We are highlighting only three here as the second half of the magazine focuses specifically on the topic of sustainability. You will also find further details in the following interview with our CEOs.

» In 2020, KLINGER Dichtungstechnik (KDT) built a regenerative post-combustion plant for the production of PTFE seals. Current measurements show very pleasing values: With every ton of PTFE material produced, we save one ton of CO_2. Under full system utilization, this results in a CO_2 reduction of 150 tons per year.

» In 2021, all CMR substances were banned from our gasket sheet production. CMR substances? The abbreviation stands for carcinogenic, mutagenic, and reprotoxic. They are substances that are harmful to health and the environment. Luckily, there are usually alternatives. It is high time we made the switch because we at KLINGER are convinced safety must come first!

» Of course, so much commitment did not go unnoticed. You can find out which awards and environmental seals of approval KLINGER received in the past year on page 40.

Customer benefit: Always enjoy a clear conscience when you buy from KLINGER. A big plus for our customers is that we think ahead and often fulfill tomorrow's legal frameworks today.

Interview with the KLINGER CEOs

"We see ourselves as a solution provider"

More service! More sustainability! More automation! And a stronger social media presence! When KLINGER CEOs Daniel Schibli and Christoph Klinger-Lohr review the past year and venture a look into the future, they spread a spirit of optimism.

The KLINGER company motto is trusted.worldwide. What does that mean right now, in the third year of the pandemic?

Daniel Schibli: trusted.worldwide. has paid off for our customers now. Throughout the entire pandemic, we have always been able to deliver. That is due to our business model. We invest in good storage capacities. We acted flexibly and spontaneously where necessary. Above all, we took a solution-oriented approach, and if something was needed, we also contacted new suppliers. That is not so easy for smaller competitors. Maybe that is why we won over so many new customers in 2021.

Christoph Klinger-Lohr: The trust in the KLINGER brand is related to the fact that it is known around the world. The pandemic has accelerated certain developments. One of them was our rebranding process. Now, all the companies that have joined the KLINGER Group have adopted our brand identity. Our logo. Our motto. The KLINGER blue. Consistency is even more important now, because many of our buyers are working from home and spending more time on our social media channels and websites.

Speaking of working from home: What has changed in how you work with customers?

Schibli: We noticed that not every customer working from home had access to past data. We looked it up and made it available. This meant considerably more effort for our employees, but our goal was to relieve our customers of some of their extra work.

Did the range of services change during the pandemic? Was there a greater or less demand for certain KLINGER products?

Klinger-Lohr: During the first wave of the pandemic in 2020, we noticed that many projects, construction projects, major inspection work, and planned shutdowns were being put on the back burner. Accordingly, we reconsidered our range of services and expanded as well as standardized our service portfolio. We are well on the way to being able to offer a very well-rounded KLINGER service package in the coming months (more on this on page 36). This development has been accelerated by the pandemic …

Schibli: … and also accelerated in that we ourselves spent a lot of time working from home and developing new ideas. Our strategic agenda had three S's: Safety, Solutions, and Service. In concrete terms, this of course also means more products. However, KLINGER no longer sees itself as simply a component supplier, but increasingly as a solution provider. This is important to us.

The pandemic has also accelerated digitization and automation in the company. Why was that important now?

Klinger-Lohr: Especially in the second quarter of 2020, we suddenly felt like someone had pulled the plug. Many of our customers' projects came to a standstill. That was the moment we launched a wide variety of automation projects. In general, we try to automate our production sites meaningfully and to digitize quality assurance and planning processes …

Schibli: … and that makes us pioneers, because our industry is rather conservative when it comes to digitization. KLINGER is well on the way to playing a leading role in the areas of digitization and automation. We used the time during the coronavirus pandemic to position ourselves even better and to prepare as best as possible for everything that might come next.

KLINGER also intensified its presence on social media and in online marketing.

Schibli: Christoph (Klinger-Lohr, note) and Christina (Raimann, note), who, as Head of Group Corporate Services has been responsible for the entire area of marketing, communication, and digitization since the previous year, have been very active in this. At my age, I only surf the social media wave … but with all my heart (laughs).

You mentioned Christina Raimann, who now has more responsibility in the company. At the end of 2021, Barbara Köfinger also became the first female managing director at KLINGER. In general, the industry tends to be male-dominated. Is KLINGER making a trendsetting statement here?

Klinger-Lohr: A very important topic! If we look at KLINGER's history, everyone was male, from the managing director to the supervisory board. This is no longer in keeping with the times. So, if there is a suitable female candidate for a position, we look forward to meeting them!

Schibli: That's how I see it too. We are not quota hunters, but we support more diversity.

Change of topic: sustainability. This issue specifically focuses on sustainability. What does the term mean to you personally?

Schibli: Many companies only pay sustainability lip service. Not us. For us, sustainability



Christoph Klinger-Lohr und Daniel Schibli

was already a corporate principle before the term even existed. Our product range has always consisted of particularly durable products. Durable ultimately means sustainable, in contrast to today's throwaway mentality. At the same time, we constantly examine future developments. We are not system drivers who can push developments, but we always look at where we can make our contribution to environmentally friendly and sustainable overall systems.

Can you give us a specific example?

Schibli: Two keywords: "hydrogen" and "biogas" (LNG). Be it in shipbuilding or for industrial companies in the construction of small power plants. We already have solutions ready that we expect to be used on a large scale in the coming years. Hydrogen is considered the energy carrier of the future. Our internal experts even believe that we will only be able to master the necessary energy transition with hydrogen. Our products are already approved for such uses. And to be even more specific: A tanker powered by fossil fuels simply does not have a good carbon footprint. LNG (liquified natural gas), i.e., liquid gas, engines have much lower-emissions, making them more environmentally friendly. We manufacture super special valves for LNG engines. They may still be a niche product on the world market, but if you ask us, not for much longer!

Klinger-Lohr: Of course, we also take sustainable measures in the company to reduce energy consumption during production, feed waste heat back into the system and ensure that material waste is recycled and returned to production. Recently we also banned all problematic substances from gasket production.

This YEARBOOK introduces new products on page 18. Are new products also being planned for 2022 and would you like to give customers a sneak preview?

Schibli: I really do not want to reveal too much just yet, but we actually have other valve products in the pipeline that we plan to launch this year. These products will perform just like previous models but use less material.

In order to be able to develop new products, you have to invest in production technology. Which investments would you highlight for the past year?

Schibli: We made a number of investments in 2021. We purchased new machines and modernized existing ones. We also digitized the production process at various sites. This enabled us to increase efficiency and output. In our experience, investments in process optimization usually pay off. And the customers quickly notice that sales, production, and handling processes run a little smoother.

You say KLINGER is investing: Should a company actually continue to grow in these unpredictable times?

Klinger-Lohr: Of course. The desire to grow is greater than ever! The question is, where do we want to grow? Especially in times like these, it is a good feeling to know that in recent years we have always been right with our market development forecasts. For example, our assessment that once the development away from fossil fuels got started, it would take giant strides.

Schibli: For us, growth means growing qualitatively. We want to get good companies on board that will expand our product variety.

Last year, KLINGER bought the Italian gasket manufacturer Spiralit.

Klinger-Lohr: Exactly. That was a big win! As an original equipment manufacturer and total supplier of gaskets, the Italian company Spiralit will benefit our end customers in a variety of industries.

A final question: What wishes and visions do you have for the rest of 2022?

Klinger-Lohr: In addition to the end of the pandemic, I also wish for an end to the fatigue it has caused. The constant back and forth, working at home, at the office, online, offline. You can feel the exhaustion among our employees and our customers. I wish for peace and quiet to return. To have more routine and predictability again. For this year to be better than the last for both us and our customers.

Schibli: I can only agree with that. Until then, however, we will continue to go the last mile for our customers. trusted.worldwide. with or without a pandemic, we are there for you!

WHAT'S NEW AT KLINGER



KLINGER Argentina serviced and supplied the energy provider Raízen.
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KLINGER Westad
in Norway invites customers to the digital table.
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KLINGER Dichtungs-technik
in Austria is speeding up digitization and automation.
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KLINGER Fluid Control
in Gumpoldskirchen is launching the Monoball KHO, an even more robust ball valve.
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KLINGER Fluid Control
in Gumpoldskirchen is going to manufacture 35,000 units of the new, extra-durable Ballostar KHA valves in 2022.
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KLINGER Dichtungs-technik
in Austria is doing pioneer work for drinking water with KLINGERSIL C-4240.
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KLINGER Schöneberg
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KLINGER Poland
is celebrating its 30th anniversary.
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KLINGER Italy
welcomes the expert gasket and seal manufacturer Spiralit on board!
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Istanbul/ Turkey
We'd like to put the spotlight on our Turkish sales partner Salmarcon.
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Locate di Triulzi/Italy

KLINGER Italy acquires Spiralit

The expert gasket and seal manufacturer Spiralit joins the KLINGER Group.



Gennaro Scotti (Director Business Development), Christoph Klinger-Lohr (CEO KLINGER Group), Marco Santiani (Director Operational Excellence), Daniel Schibli (CEO KLINGER Group), and Raffaele Pittaluga (MD KLINGER Italy)

With more than 175 years of experience between them, KLINGER Italy and Spiralit are perfectly matched to bring mutual gasket and seal mastery to Italy.

When Spiralit founders Marco Santiani and Gennaro Scotti began to plan the next phase for their company, they knew the business was ready for a wider audience. Quality recognizes quality, and KLINGER Italy could see that the Spiralit team was dedicated to the precise workmanship and high quality that KLINGER customers have come to expect. Said Raffaele Pittaluga, Managing Director of KLINGER Italy, "Spiralit shares the same values as KLINGER. They make good products, with good people. They're a perfect fit."

After discussing mutual goals, a deal was struck, and Spiralit joined the KLINGER Group as a part of its Italian business.

Contact for customers

Email: spiralit@spiralit.it
Phone: +39 02 904 8171

Spiralit headquarters



A history of quality

Spiralit has a legacy of exacting quality control and high-caliber products, as exemplified by its TA-Luft VDI-2440 and UNI EN ISO 9001:2008 certifications. This attention to detail meshes perfectly with KLINGER's commitment to offering the highest quality materials, creating a partnership that will allow current and future customers access to the best products on the market.

Spiralit offers a multitude of sealing products for major industries such as oil and gas, chemical processing, and power plants. Its flat gaskets include specialty options such as PTFE, graphite, rubber, and eyeleted gaskets. Spiral wound gaskets are available coated and uncoated, with a variety of metals and filler materials depending on project needs. Threeply and metal jacketed kammprofile gaskets are suitable for high compression applications. Metallic gaskets for petrochemical applications come in a variety of alloys and shapes, while calibrated shims are tailored for use with compressors, turbines, and pumps. Five types of flange insulation kits prevent contact corrosion and galvanic corrosion in a variety of systems. Packings come in multiple yarns to suit the entire pH range and multiple types of media. Seal rings include standard rubber O rings, as well as specialty items like Gard Oil, a labyrinth system instead of lip seal rings.

Spiralit's innovation doesn't stop at its products; the facilities themselves are also constantly upgrading and improving. New water jet, flash cut, and automatic spiraling machines enable the team to produce multiple variations of custom sealing products in a fraction of the time required in standard operations. Specialized CAM (computer aided manufacturing) products such as sophisticated nesting software allow



Spiralit product line

Get To Know Spiralit!

- Spiralit is based in Locate di Triulzi, 20 km south of Milan.
- The company has been in business for more than 50 years.
- Its facility features a production workshop of over 3,200 m^2 and a total factory area of over 4,300 m^2.

Spiralit to maximize plate utilization, reduce waste, and lower material costs. Automated manufacturing processes enable the manufacturer to meet tight specifications with high speed and precision. The company's forward-thinking attitude and dedication to continuous product improvement helped it to grow a solid customer base, while its unparalleled customer-first atmosphere encouraged loyalty and repeat business.

Seamless dedication to service

"Spiralit customers can expect to receive the same excellent sealing products and skilled service, but with the addition of KLINGER's extensive resources backing the relationship," promises Marco Santiani.

All normal business processes will remain unchanged, allowing customers to experience a seamless transition during the integration process. Marco Santiani and Gennaro Scotti will remain a part of the leadership team as directors for the development of important projects in the field of operational excellence and business development. Scotti is looking forward to this next chapter in Spiralit's development, saying "The new ownership will let us do more for our customers. If they notice any difference, it will only be a positive one." This winning combination will no doubt prove a boon to the entire Spiralit and KLINGER Italy customer base.

What products will Spiralit offer?

Spiralit offers a full portfolio of gaskets and seals, including spiral wound and kammprofile gaskets. Other popular products include packing rings, carbographite sealing elements, and flange insulation kits.

Where will Spiralit offer products and services?

Combining Spiralit's high-quality products with KLINGER's robust network and services will allow the company to expand operation throughout all of Italy. Contact your local representative for details.

"Spiralit customers can expect to receive the same excellent sealing products and skilled service, but with the addition of KLINGER's extensive resources backing the relationship."

Marco Santiani,
Director Operational Excellence



"The new ownership will let us do more for our customers. If they notice any difference, it will only be a positive one."

Gennaro Scotti,
Director Business Development



"Spiralit shares the same values as KLINGER. They make good products, with good people. They're a perfect fit."

Raffaele Pittaluga,
Managing Director of KLINGER Italy





Gumpoldskirchen/Austria

Automatically good

Everybody else talks about it, we do it: Digitization and automation are already implemented in many work processes throughout KLINGER Dichtungstechnik. News of this also reached Federal Minister Margarete Schramböck, who paid our factory a visit.

In mid-November 2021, the KLINGER team in Gumpoldskirchen welcomed a prestigious visitor: Margarete Schramböck, Austrian Federal Minister for Digital and Economic Affairs, inspected the technical infrastructure and automation processes at KLINGER Dichtungstechnik (KDT). "It was an honor for us to welcome the minister, politicians and business representatives," says Peter Müller, CFO of the KLINGER Group. During the factory tour, the visitors got up close and personal with the calenders, took an in-depth look at the gasket production, and clearly displayed their enthusiasm for the innovative strength of the Austrian "hidden champion" KLINGER.

With 300 employees, the holding company, two production sites, a trading house, and an apprentice workshop in Gumpoldskirchen alone, KLINGER makes a significant contribution to value creation in the region. What is less well known is that KDT combines its more than 135 years of history at this location with a keen sense of cutting-edge modernization processes. As a result, gasket production at the Gumpoldskirchen site has become a best-practice model in terms of digital transformation and will serve as guiding light for KLINGER branches around the world. The automated manufacturing processes and software adaptations that are currently being developed for KDT can also be implemented quickly at other KLINGER production sites. "This will allow us to create a cross-factory standard in the future," says Ernst Schäfer, Technical Managing Director of KDT.

Digital quality management

Meticulous quality control is essential to ensure customers receive premium products. In the past, the calender operators had to collect the necessary data for each batch, including material thickness and any optical or other defects, and record them on a quality control chart. "This time-consuming manual documentation is finally a thing of the past!" says Ernst Schäfter happily. The



Left to right: KDT Technical Managing Director Ernst Schäfer, KDT Project Manager Digitization David Karnthaler, Mayor Gumpoldskirchen Ferdinand Köck, Regional Minister Jochen Danninger, Head of Group Corporate Services Christina Raimann, Federal Minister Margarete Schramböck, KDT Commercial Managing Director Barbara Köfinger, KLINGER Group CFO Peter Müller, KDT Head of R&D Stephan Piringer, Business Unit Director Sealing Michael Sautter.

A model company in terms of digitization with a long tradition: Federal Minister Margarete Schramböck was shown the KDT facilities in Gumpoldskirchen.

quality assurance process has been completely digitized since the end of 2021. The machine now has an industrial computer with a touchpad. With just a few touches of the screen, you can view the automatically recorded measurement results, such as roller pressure, roller gap, and speed. This allows the KLINGER team to easily ensure that the products come out of the rolling mill exactly as specified in all parameters.

At KDT, all the essential manufacturing processes, i.e. all the systems and machines, are currently being upgraded in order to collect data and, in some cases, send automatic alarms. “This is the first phase of the digitization process. It will provide us with an overview of the conditions in the production facilities and allow us to further optimize the processes,” explains Ernst Schäfer.

The next step is already being implemented: the fully automatic control of the production system. In the near future, we will also begin introducing artificial intelligence at KDT: The SCADA monitoring software (see info box) will be expanded to include an AI tool that compares current processes with existing data. This will enable critical system areas to interface with the fire alarm control panel, processes to be designed more efficiently, downtimes to be avoided, and important decisions to be made on the basis of real data.





Digital quality control: Data at KDT used to be recorded using a grid. Now the data is evaluated live via the SCADA system, which communicates with the production machines and sensors. The data can be accessed from any computer.

What is SCADA?

SCADA stands for “Supervisory Control and Data Acquisition”. Companies use SCADA systems to control their factories at multiple locations and collect data about the operating processes, making them more transparent.

The following applications are possible via SCADA:

» Control of processes (even remotely)
» Interaction with devices via software
» Recording, monitoring and processing of events and data



At the calender, Schramböck inspected the production process for the gasket sheets.



The monitors next to the TopChem production system show all the key furnace parameters such as temperature distribution and air volume flows in real time.



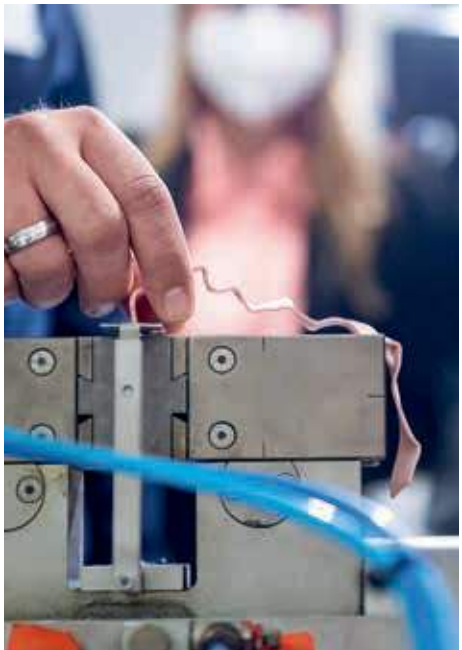
Before leaving the production hall, each individual batch is tested in the laboratory to ensure that the product properties are perfect. Minister Schramböck herself performed a stress test on the material.



With a sales share of 85 percent, the universally applicable KLINGERSIL is the clear top seller at KDT. The quality assurance process for this product was completely digitized in 2021.



In product development, KDT Head of R&D Stephan Piringer (left) presented the raw materials used in the complex formulas for the KLINGER gasket sheets.



Graben-Neudorf/Germany

215 m² of knowledge

KLINGER Schöneberg received a technical upgrade.

In order to deliver the best possible results, a test laboratory needs state-of-the-art equipment, constant conditions with regard to light, air, hygiene, and temperature as well as specialists who operate the equipment professionally. The new, brightly lit laboratory at KLINGER Schöneberg offers all this and much more.

In addition to the standard tests that continuously accompany series production and manufacturing, more complex tests required for the development of new products can now also be performed in the new KLINGER Schöneberg laboratory in Graben-Neudorf. With an extra 215 m², last year's expansion provides more space for creativity, innovation, and advanced knowledge to deliver a considerable advantage over the competition.



We would like to introduce our newest test benches from left to right: leak tightness test bench, life cycle test bench, torque behavior test bench, and the analysis station.

> "Our new test laboratory gives us a clear competitive advantage. After all, the 'time to market' of our locally developed products is now much shorter."

Marcel Goßmann, Business Development Manager at KLINGER Schöneberg



Ready to roll with three new test benches

The newly expanded laboratory contains three new test benches. One was specifically designed for the new location and now performs the qualifications for the leak-tightness of the shut-off and control devices following the new "Technical Guidelines for the Prevention of Air Pollution" as well as the components tests in accordance with DIN EN ISO 15848-1. A helium mass spectrometer measures leaks under different pressure and temperature conditions. In addition to the outer leak-tightness, the inner leak-tightness (the so-called leak-tightness in the port) is determined with the pressure drop method and the bubble test. Depending on the material, the test bench can use either helium, nitrogen, oxygen or compressed air as test media.

Another test bench examines the torque behavior of ball valves and actuators. A third test bench measures their service life under various conditions. This so-called life cycle test bench also enables long-term tests with hundreds of thousands of cycles being performed over weeks if required. Differential pressure testing, different test media (gaseous, liquid or solids), and temperatures of up to +400°C simulate the extreme conditions under which some customers rely on our products.



Ball valves can be tested for the new Type Test Certificate (TTC) as well as for fire safety in the new laboratory. All the test benches are connected to the high-pressure network and can be operated at up to 310 bar.

Gumpoldskirchen/Austria

KLINGERSIL C-4240: pioneering work for drinking water



With the KLINGERSIL C-4240 gasket sheet, KLINGER Dichtungstechnik (KDT) is introducing a new product for drinking water installations that meets all the criteria of the new Elastomer Guideline.

The pioneering role in and of itself is nothing new for the KDT team; after all, they were the first to offer asbestos-free gaskets. Now, another innovation is finding its way into the Gumpoldskirchen portfolio: The first fiber-reinforced flat gasket for drinking water that meets the strict requirements of the new Elastomer Guidelines of the German Federal Environment Agency comes from KDT.

Game-Changer Elastomer Guideline

The Elastomer Guideline severely restricts the list of raw materials that can be used for gaskets that come into contact with drinking water. Many certificates expired at the end of 2021. "The changes regarding the drinking water hygiene assessment have been planned for a long time, but there have been delays and temporary solutions that have caused great uncertainty," reports Norbert Weimer, Manager of KLINGER Germany. The KDT team put out their feelers early on, gathering information from interest groups and other channels, and correctly interpreted the signs of the times. This allowed them to get started on developing the KLINGERSIL C-4240 gasket sheet for the drinking water sector. This innovative product meets all the requirements of the new Elastomer Guideline and is available to our customers for every drinking water application.

The first prototypes were made a good three years ago, after a thorough analysis of which raw materials may and may not be used. "The list is quite short and only contains raw materials that have been rated as safe by testing institutes. Many of the raw materials that were previously used are now prohibited," explains Stephan Piringer, Head of Development at KDT.

Put to the test

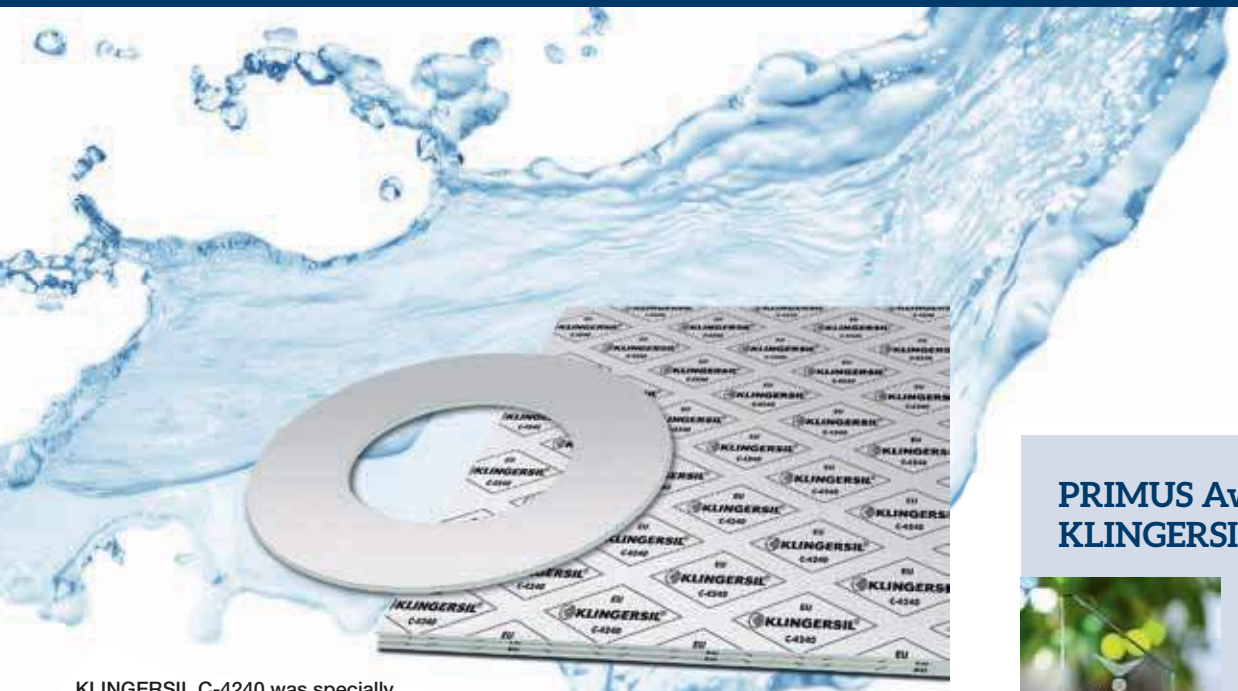
The team even submitted a raw material for evaluation. Then a composition was



After thorough analysis and extensive testing, KDT developed the new gasket material KLINGERSIL C-4240.

Did you know that the new drinking water gasket KLINGERSIL C-4240 ...

... is made of robust NBR rubber reinforced with cellulose fiber?
... is deliberately produced without the addition of color pigments?
... has already received a certificate in accordance with the new Elastomer Guideline that is valid until March 2026?
... is suitable for applications with cold and hot water up to a temperature of 85°C?
... demonstrably has no influence on the taste, smell or other properties of the drinking water?



KLINGERSIL C-4240 was specially developed for drinking water applications and is certified in accordance with the new Elastomer Guideline until March 2026.

developed and prototyping started: "The prototype was subjected to various endurance tests for an entire year and meticulously examined for residues in specialized, independent laboratories," says Piringer.

The tests lasted approximately one year and included wet chemical procedures to ensure the gasket is safe to use in drinking water applications. The approval phase, which lasts for almost a year, was also planned carefully to ensure the product could be offered in good time before the certificates for many drinking water products expired.

Not every competitor has the infrastructure, the capacities, and the know-how to develop such a product. The manufacturing process with these new materials is more complex and time-consuming. The rollers have to turn more slowly because the chemicals that are now used do not harden as quickly.

A large group of users

KDT sells the gasket sheets to small and large stamping companies as well as to technical distributors. There is a wide range of users: Wherever drinking water is involved, such gaskets are required. This affects manufacturers of components for drinking water installations such as house water filters, pressure reducers, water meters, etc. as well as installation companies, hardware stores and operators of large drinking water treatment, storage and pumping systems.

> "The prototype was subjected to various endurance tests for an entire year and meticulously examined for residues in specialized, independent laboratories."

Stephan Piringer,
Head of R&D





Norbert Weimer,
Manager of KLINGER Germany

PRIMUS Award for KLINGERSIL C-4240



The KLINGERSIL C-4240 received the Primus Award for "absolute safety in drinking water".

A prestigious award right at the market launch proves that the new drinking water gasket KLINGERSIL C-4240 knows where the future flows.

Planning ahead pays off: The hard work of the development team at KLINGER Dichtungstechnik was recognized by Germany's leading specialist magazine "Industriearmaturen+Dichtungstechnik". The KLINGERSIL C-4240 gasket received the PRIMUS Award 2021 in the most innovative product category (valves, actuators, and gaskets) for its "absolute safety in drinking water". The award was presented at the DIAM & DDM 2021 industry event to the Head of KLINGER Germany, Norbert Weimer, who attended with his colleagues Gerald Klein and Stefan Keck.



Award recipients: Gerald Klein, Norbert Weimer, and Stefan Keck (from left to right) from KLINGER Germany

Gumpoldskirchen/Austria

The "Mercedes of ball valves"

With the Monoball KHO, KLINGER Fluid Control is launching a new, even more robust ball valve.



Monoball KHO: approximately 15,000 units of the new premium product are to be produced this year.

District heating pipes are like an accordion. They constantly expand and contract. They are hundreds of kilometers long and seasonal pressure and temperature fluctuations cause enormous changes in length. They have to withstand all this to keep us comfortably warm. This is true not only for the pipes, but also for the ball valves, which are placed between the pipes at regular intervals in order to be able to shut off the water if necessary. In particular, the weld seams of these ball valves are placed under extreme stress. If they were to fail, the heating supply would be disrupted, and extensive excavation work would be needed. To prevent this, KLINGER Fluid Control (KFC) is launching a whole new generation of ball valves: the Monoball KHO.

Single cast housing

The KLINGER Monoball KHO is a true product innovation: "We have set ourselves the goal of improving good products and at the same time offering them more cost-effectively," says Xaver Gruber, Managing Director of KFC. Whereas ball valves used to be welded together from bent metal pipes, the Monoball KHO is a new approach: "The Monoball KHO has a neatly cast housing that can absorb even more force than the previous model. Inside, there is a ball with a full bore to keep the flow losses to a minimum, instead of a tube bent into a ball as before," says Gruber. KFC made a conscious decision to increase quality. After all, we want to do justice to the company's reputation and offer the "Mercedes of ball valves", as Gruber puts it.

One ball valve, many models

This "Mercedes" is available in a variety of models. Models with threads or flanges can be adapted to customer requirements with very little effort. "The modular design means we only have to import a few parts. We receive a housing that we can customize on site," says Gruber. The precision casting of the housing is a complicated process in which a thin-walled steel casting is created around a wax mold. Its low weight saves material and transport costs. "Casting requires more personnel, but we can reduce the processing time in Gumpoldskirchen and make optimal use of the available resources," explains Gruber.

Unbeatable value for the money

The KHO ball valves were previously produced with a partner in Hungary. Now, KFC is moving the entire production to the Austrian site in Gumpoldskirchen. The plan is to outperform the competition thanks to the unbeatable price-quality ratio: "We are the only ones offering a cast metal housing. Penetration welding is used where welds are required. The Monoball KHO does not have any weaknesses," explains Gruber proudly.

At a glance: advantages of the Monoball KHO

- Maintenance free
- High resistance to pipeline forces
- The only product on the market with full penetration welds
- Meets the requirements of the AGFW worksheet FW 401 – Part 5
- Spring-loaded gasket elements with disc springs made of stainless steel
- Long shaft for insulation
- Shaft stem made of stainless steel
- Can be pressurized on both sides
- Multiple, durable shaft stem sealing
- EN 488:2019 and EHP003 certified



The many models of the new Monoball KHO

Gumpoldskirchen/Austria

Some like it hot

The Swiss Army Knife of the industry



Approximately 35,000 of the new KLINGER Ballostar KHA valves are to be manufactured in Gumpoldskirchen in 2022. The ball valve for industrial processes stands out with its durability and special protective shield.

Abrasive. The word sounds unpleasant, corrosive, and even dangerous. That's true too, because in technical jargon, everything that attacks and wears down pipes and containers is called "abrasive media". This is particularly the case with liquid and gaseous media in energy-intensive processes, as is the order of the day in paper or steel mills. Coke gas, for example, causes damage to the pipes over time, as well as to the ball valves that regulate its flow. This is exactly where the new KLINGER Ballostar KHA shines because it feels right at home in extreme environments.

"Swiss Army knife for the industry"

The KLINGER Ballostar KHA does its job between -196°C and +400°C (-385°F and 752°F). "In addition to the high temperature fluctuations that it has to withstand, there is also the fact that it is often turned on and off. That also places stress on the valves," explains Xaver Gruber, Managing Director of KLINGER Fluid Control (KFC). The company has thus brought a product innovation to the market that is precisely tailored to meet the increasingly high demands of the industry: For instance, the internal workings of the KLINGER Ballostar KHA can be replaced without substituting the entire valve. It is also easy to maintain because the center section of the ball valve can be opened after removing three screws. Gruber: "We also call the Ballostar KHA the 'Swiss Army knife for the industry' because it can be used in countless configurations with a variety of gaskets and is of extremely high quality."

Just like its Swiss counterpart, the KLINGER Ballostar KHA is not only handy, but can also be used universally. The modular design makes it possible to use the ball valve with custom connections of any nominal diameter. "The end piece is a standard part in which we either turn a thread, prepare a weld seam or weld it with different flanges according to the customer's requirements," says Gruber. "With little additional effort, we can also design the same valve as a double-seated ball valve with a test connection for extreme safety requirements." This puts the company in a position to cover the entire breadth of the market and to draw on the existing KFC resources.

The future is digital

Ballostar KHA surpasses the standards of previous KLINGER ball valves in other respects as well. The "fire-safe" option, which was previously only available as an extra, is now standard. In addition, the ball valve was given a new surface coating for rust protection. The KACP, KLINGER Advanced Corrosion Protection, coating shields the valve from external influences. The gas tightness to the outside on the flanged side is also a new standard feature of the KLINGER Ballostar KHA, making it perfect for today's demands: "With these outstanding product properties, we can now not only open and close, but also regulate the flow of media. After all, our goal for the future is to offer more intelligence and equip the ball valves with sensors and motors so that they can continue to play at the forefront even in an increasingly digitized industry," says Gruber.

> "With these outstanding product properties, we can now not only open and close, but also regulate the flow of media. After all, our goal for the future is to offer more intelligence and equip the ball valves with sensors and motors so that they can continue to play at the forefront even in an increasingly digitized industry."

Xaver Gruber, Managing Director of KLINGER Fluid Control





The new KLINGER Ballostar KHA, as durable and flexible as a Swiss Army knife



Countless connection and gasket options



The design of the Ballostar KHA looks almost the same as it did 30 years ago. What's new is the structure, which gives the students the choice of using the ball valve with a hand lever or an electric drive. From left to right: Daniel Humpolec (student), Xaver Gruber (MD KLINGER Fluid Control), Wilhelm König (former professor and laboratory manager), Otto Keiblinger (Head of the Mechanical Engineering Department at the HTL), Heinz Peterschofsky (Head of the Hydro laboratory), Martin Pfeffel (Director of the HTL), Darius Gergely (student)

Gumpoldskirchen/Austria

Young talents heading for sustainable hydropower

KLINGER sponsors the hydro laboratory at HTL St. Pölten with a brand new Ballostar KHA.

Federal College of Engineering and Research (HTL) St. Pölten

Three main areas of education:
1. Mechanical engineering
2. Mechanical engineering & economics
3. Electrical engineering and computer engineering (fastest growing)

www.htlstp.ac.at
Get to Know the Hydro Lab!



In the hydro laboratory of HTL St. Pölten in Lower Austria, students can put their knowledge of hydropower, turbines, and how power plants work to the practical test: Our threepart ball valve KLINGER Ballostar KHA brings them up to date with the latest technology.

On an area of 200 m², the young technicians at HTL St. Pölten can try out pretty much everything related to hydro technology, including fittings, pumps, turbines, and steam boilers. It is great that they start out working with high-quality products from KLINGER right away. After all, KLINGER has been supporting the hydro laboratory since it was launched in 1978.

Sponsoring as a win-win for everyone

On December 14, 2021, it was time to replace the 30-year-old ball valve with a new Ballostar KHA. The perfect occasion to celebrate an outstanding partnership! Not surprising, since the sponsorship program benefits both sides:

» In this way, KLINGER can interest technically well-trained young people in internships and future jobs with the company. After all, with 1,700 students HTL St. Pölten is the second largest technical school in Lower Austria.
» What's more, a number of high school diplomas and theses have already focused on KLINGER products. An early start for tomorrow's KLINGER experts.

Incidentally, it is no coincidence that HTL St. Pölten specializes in hydropower: The Andritz Group, one of the world market leaders in this sector, is located nearby, opening up opportunities for further synergies.

Hydropower: even more complete solutions in the future

During the visit to HTL St. Pölten, Xaver Gruber, Managing Director of KLINGER Fluid Control (KFC), once again praised the fact that the HTL hydro laboratory is a small-scale representation of the future of the market. Going forward, KFC intends to become even more active in this market with complete solutions: valve plus actuator plus electrical engineering. In other words, solutions that are already installed in the hydro laboratory. All the better if the know-how of the next generation is incorporated into the development of such future packages. Cheers to the HTL St. Pölten!

Warsaw/Poland

Happy birthday, KLINGER Poland!

KLINGER Poland is celebrating its 30th anniversary.

> "If I could choose between durability and sustainability on the one side and quick sales on the other, I'd always go for quality!"
>
> **Marek Flisowski, Managing Director KLINGER Poland**



"If I could choose between durability and sustainability on the one side and quick sales on the other, I'd always go for quality!" says Marek Flisowski, who after 15 successful years as KLINGER Poland's Managing Director is still a man of conviction. On the occasion of KLINGER Poland's 30-year-anniversary, we asked Flisowski, who has been with the company from day 1, to review the past three decades.

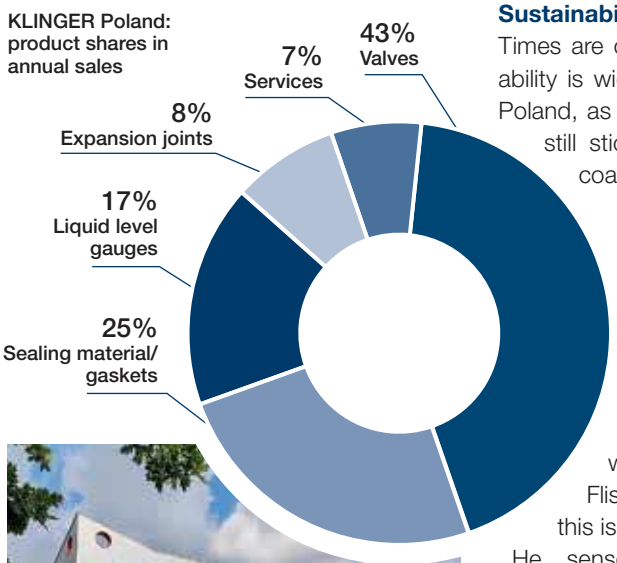
Approaching free market

"It all started in 1989/1990 when Poland, having been a communist country for 45 years, gradually approached a free-market economy," says Flisowski. Until then, it had not been possible to do business with end users. "There were government trading centers. Only legal persons were allowed to trade with foreign currency." When this changed in 1991, Flisowski, a technical expert for valves, was asked by a friend to join him in the representation of KLINGER products. KLINGER w Polsce Sp. z o.o., a subsidiary of the Austrian based KLINGER Group, was founded. In the beginning, the company consisted of no more than three people in a small office in the center of Warsaw. There was no space to keep stock. Everything had to be ordered directly from Gumpoldskirchen, Austria.

Winning over district heating

"At first, it was hard to convince customers to opt for KLINGER products. They were definitely not the cheapest in the market," Flisowski remembers. "But in the long run, due to their durability, the products would more than pay off." The breakthrough came when KLINGER Poland closed a deal in district heating. "Polish district heating technically was in a very bad state. The valves were old, the pipes full of rust. They needed renovation quickly," says Flisowski, who at that time managed to win over five of the biggest Polish cities (Katowice, Krakow, Warsaw, Gdansk and Gdynia) as customers. Via loans from the World Bank, the city councils were able to completely overhaul their dilapidated infrastructure.

Suddenly KLINGER valves became a household name in the industry: "Before that, KLINGER was known as a producer of gaskets, mainly used in Polish power generators. Now, early on between 1992 and 1995, we had opened a door to district heating," Flisowski recalls. "That was our big success, the big kick off." Over ten more cities followed suit.





KLINGER Poland located in the industrial district of Warsaw

KLINGER Poland's expansion course

In 2004, the company moved from the city center to the outskirts, where a warehouse could hold some stock. "Today, we are a total of 16 people, eleven in the office and five sales engineers in the field," says Flisowski. "Even though we are still one of KLINGER's smallest companies, we are growing systematically."

Sustainability: a look into the future

Times are changing. But whereas sustainability is widely discussed all over Europe, Poland, as a traditional coal mining nation, still sticks to the concept of burning coal to generate energy.

In the long run, the government plans to install gas turbines in some of the existing power generation plants. "Some of them have even more than ten boilers that are still fed with coal. A number of them will soon be fed with gas," says Flisowski. "In terms of emissions, this is a much healthier solution."

He senses a huge opportunity for KLINGER to take part in the refurbishment process. "Thanks to the new Taiwanese joint venture with KLINGER Die Erste, we can offer precisely the valves and butterfly valves that are needed." Flisowski himself, who after 30 years with KLINGER is heading towards his well-deserved retirement soon, will supervise this process from his position as a senior consultant.

Garin/Argentina

The benefits of an ideal business partnership

Two different KLINGER divisions were involved when KLINGER Argentina serviced and supplied the energy provider Raízen – a deal aimed at securing both safety and environmental benefits.

"The first time I met maintenance engineers at Raízen in 2005 (at that time the well-known refinery located in Buenos Aires, Argentina, was part of the Shell group of companies), their main concern was ensuring the highest safety standards and contributing to a clean and healthy environment. Since both companies were pursuing the same goals, we put our heads together and started what would become a long-term business relationship. We just celebrated signing the fourth consecutive Agreement for the Repairing and Testing of the sleeved plug valves used in their Alkylation Unit," explains Claudio Pacheco, Sales Manager at KLINGER's Flow Control Solutions Division.



Since 2018, the former Shell oil refinery has been part of the energy provider Raízen, a joint venture between Shell and Cosan, based in Brazil.

> "Oil refineries specifically look for qualified suppliers to help shorten the time of the unit shutdowns."
>
> **Claudio Pacheco, Sales Manager, Flow Control Solutions Division**



Chemical processes at Raízen

Alkylation is a chemical process that improves the octane level of gasoline through the use of a catalyst, creating a premium gasoline stock and also a key component in aviation fuel. This end product is called alkylate, which is a mixture of high-octane isopentane and isooctane. The two principal alkylation process catalysts are sulfuric acid (H2SO4) and hydrofluoric acid (HF). The latter is used more frequently at Raízen, due to its more efficient process and slightly lower acid consumption rate.

Keeping downtime short

Most HF units operate with a turnaround time of four years, which requires refineries to shut down production so they can repair and upgrade the unit. "This downtime for repairs and upgrades results in significant revenue loss for them," explains Pacheco.

They quickly turned to the Flow Control Solutions division at KLINGER Argentina, who under Claudio Pacheco's direction had previously worked a miracle for the refinery by repairing 35 valves in one marathon overnight session in 2013. As the KLINGER team's extensive experience with caustic agents allowed them to perform the needed repairs and testing with the requisite caution and precision to ensure a fast, effective service cycle, they were called again to participate in the challenge, winning Raízen over by using original parts and original procedures, in addition to using a repair and test system that met the most stringent norms.

raízen

5 reasons Raízen chose KLINGER

1. **Savings:** KLINGER's expert repair and refurbishment process for Monel valves delivered a like-new product for less than 20 percent of the cost of full replacement.
2. **Speed:** When Raízen approached KLINGER for a service partnership, KLINGER performed on-site investigations, reverse engineered samples, performed quality testing, and provided production-ready replacements in under two months.
3. **Scheduling:** KLINGER was able to complete all repair and refurbishment during Raízen's scheduled plant shutdown, with no loss of productivity.
4. **Safety:** KLINGER's experts followed stringent protocols to remove all traces of hazardous fluids, ensuring employee and customer safety during caustic valve service.
5. **Service:** KLINGER used their own trucks to deliver needed parts to the refinery within the same day.

> "This premium-grade, high-pressure gasket is suited for use in high-temperature alkaline media and superheated steam systems, making it ideal for Raízen's specialty chemical needs."

Jorge Nowak,
Sales Executive, KLINGER Argentina's Industry Division





Cristian Gonzáles,
Sales Manager KLINGER Argentina's Industry Division

KLINGERSIL C-4500 gasket



Teaming up to maintain the valves

"A year and a half before the Alliance Agreement was signed," Pacheco remembers, "the KLINGER Service & Repair Team was invited to participate in several meetings at Raízen facilities to provide us with safety and quality trainings, safety clothing, and first aid kits." This really felt like a team-building gesture, Pacheco adds.

The repair process at Raízen includes

» Recovering the valves used in corrosive and erosive processes
» Checking the status of internal metal components by using dye penetrant
» Once the damage (if any) has been checked and addressed, changing both primary and secondary seals
» Adjusting and leaving the valves as good as new
» Finally, testing performance and leakage according to the end user's requirements and norms

"This process requires that we follow safety protocols in order to assure the integrity of not only our personnel, but also for those persons who will operate the valves later on in the plant," Pacheco explains. The Safety Protocol includes sending the valves in open position, with all their bolts and bonnets loose, in order to release any liquid or gas trapped in the free cavity of the plug.

Valves are tested as per ANSI FCI 70-2 Class VI Leakage Test and API 598. Both of these standards state that, for shell and back seat tests, no visible leakage is permitted. If the fluid is a liquid, there shall be no visible evidence of drops or wetting of the external surfaces (no visible leakage through the body, body liner, if any, and body-to-bonnet joint, and no structural damage).

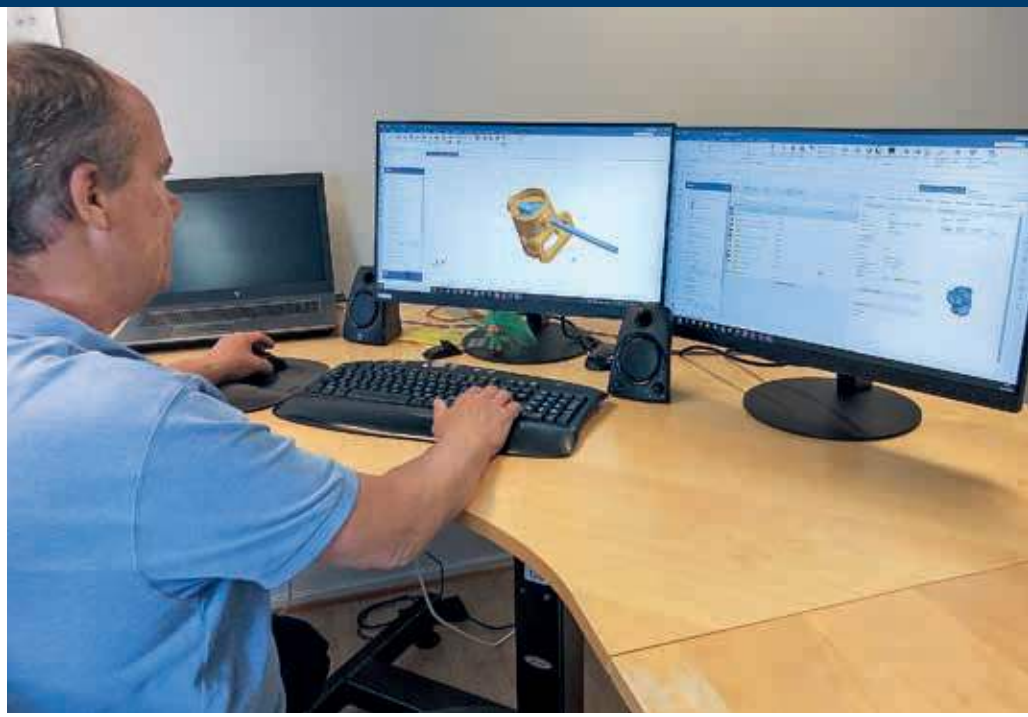
High-pressure gasket KLINGERSIL C-4500 as the perfect replacement

Following the same service concept, KLINGER's Industry Division also offers Raízen comprehensive gasket consultancy. After an intensive series of inspections, testing and sampling, Jorge Nowak and Cristian Gonzáles from the KLINGER sales team and gasket experts suggested replacing all existing system gaskets with the KLINGERSIL C-4500.

A standard KLINGER product, this gasket is consistently kept in stock, and can be produced within three days. With a clear path in place, the KLINGER team got to work designing and cutting KLINGERSIL C-4500 gaskets to the custom sizes and shapes needed.

Keeping things flowing

"In our trade, we see ourselves as entrepreneurs, problem solvers, and technology leaders," Pacheco says. "We are a reliable partner for customers all over the world. In this case, KLINGER's Industry Division (gaskets) and Flow Control Solutions Division (valves) teamed up to deliver the ideal solution." Then he adds, with a wink and, quoting KLINGER's Company motto: "We keep things flowing."



Everything at hand: In the PLM system (right screen) the designer can find all the information he needs for the design of the tailor-made customer product (left screen).

Geithus/Norway

The workflow magic of PLM

As the world relearns how to collaborate during COVID, Norway's KLINGER Westad has begun digitally integrating efforts across departments through a new PLM (product lifecycle management) system from Siemens Teamcenter®.

With customer satisfaction in mind, KLINGER was determined to ensure a good user experience on both sides of the digital table. When it was time to upgrade the previous CAD system in 2016, Technical Director Øystein Andre Bakkene saw an opportunity. His previous aerospace experience with PLM convinced him that a similar system would meet KLINGER's engineering needs. He and Ole Petter Christensen, Engineering Manager, began the process of researching systems and meeting suppliers to determine the best product for KLINGER's development process. Multiple challenges along the way made the timeline stretch farther than originally anticipated, but the team persevered.

As Ole points out, support from the board was essential in order to make such a long-term project possible: "It's a change of process that will lead to many improvements along the way."

Customized customer experience

With all system users accessing one central "source of truth," customers can expect a more precise, customized experience throughout the product lifecycle. All departments provide frequent updates that are easily retrieved through tailored access groups, furnishing customers with details ranging from drawing revisions through product configuration status and shipping status. This faster, more direct access to project updates will give customers more autonomy while also ensuring that the entire project team has the latest information. Explains Øystein, "There's a very short way for everyone to obtain precise information.

Good to know

What is PLM?
PLM, or product lifecycle management, is the process of overseeing the entire journey of a product's existence, from ideation to disposal.

How does PLM software work?
PLM software allows an organization to distribute data access across departments, giving all team members the data they need to deploy people and resources where they are best used. At KLINGER Westad Siemens Teamcenter® software creates this single source of data across all workflows, streamlining the product development, revision and production processes and allowing every contributor to the project to access the same centralized information.

What does this mean for KLINGER customers?
The business side of the PLM system will improve the specificity and timeliness of data KLINGER can provide to customers. The customer side of the PLM system will allow customers to directly access product configurators, documentation, and other records.



Ole Petter Christensen, Engineering Manager at KLINGER Westad



Øystein Andre Bakkene, Technical Director at KLINGER Westad

You order the correct configuration, you deliver the correct configuration, you have the correct documentation. Everything is in a very specific place at the right time."

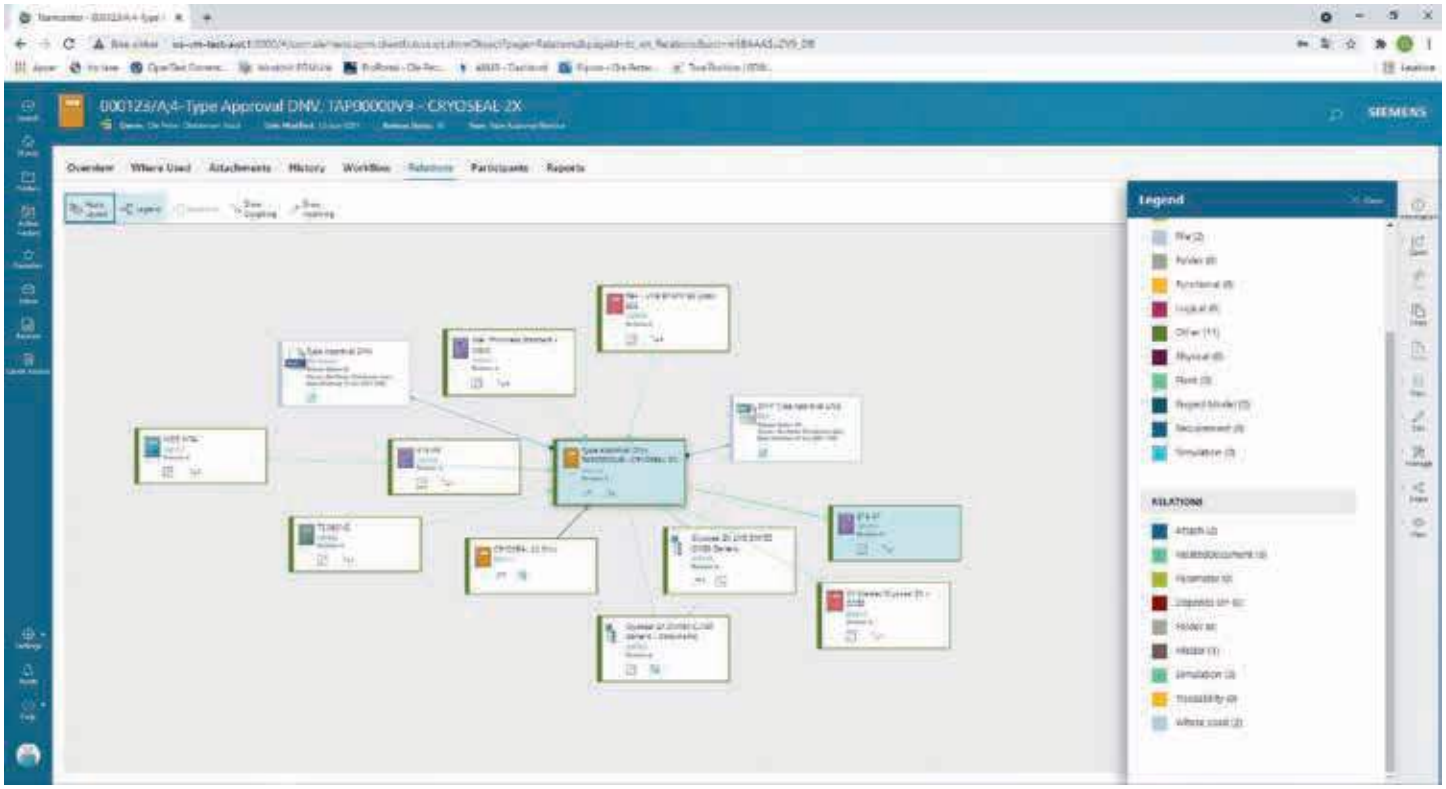
Sharing knowledge

Because PLM removes the problem of information silos, employees across the KLINGER organization have more access to more data and can make more educated decisions. For example, an engineer attempting to develop a custom valve solution may previously have been unaware that the vendor providing the materials was experiencing a shortage. With PLM integration, the supply chain team can make note of availability issues and allow the engineer to choose an alternate product with a time frame that meets the customer's needs. Ole sums up the advantages of working in a single information eco-system: "It's all about gathering the company's intellectual capital in a centralized system and making it available throughout the organization, including customers and suppliers."

KLINGER's adoption of this new system will position the company to better serve customers with a higher level of efficiency. As projects grow increasingly complicated and require ever tighter timelines, the fully integrated process of KLINGER's PLM environment will capture and track all the moving parts of a custom fluid control system with precision and accuracy.

Customer benefits

- » Asynchronous and multi-department collaboration
- » Extensive product customization
- » Full project traceability
- » Up-to-the-minute status updates
- » Advanced record-keeping for future integration



A glimpse into the new PLM already reveals the capabilities in workflow and document management as well as product configuration.

Budapest/Hungary
Istanbul/Turkey

Meet KLINGER's sales partners!

The majority of our customers have already been in contact with our sales partners: Those are the companies that support us in marketing our products and promoting our services. All of them act as resellers, providing expertise and on-site services. Still, some of them go far beyond that, marketing products they diligently manufacture under the KLINGER license. In this series, we bring a few of our international sales partners out from behind the curtain – to give you an idea of the important work they do.

International sales partners mean many advantages for our customers:
» shorter delivery routes
» faster delivery
» flexibility
» local production, cutting or assembly as a sustainability measure
» reliability even in times of global supply bottlenecks
» service in the local language

Soltész & Soltész Representation and Trading Ltd.

Since 1992, this company made sure that KLINGER products are used at the hot spots of the Hungarian industry.

Soltész + Soltész started out in 1992 as a domestic resale company for KLINGER's industrial fittings and flat gaskets, expanding its portfolio step by step. Today, the company proudly offers the full range of KLINGER products produced within Europe, catering namely to the oil and chemical industries and to energy providers.

soltesz@soltesz.hu

Company founder and CEO György Soltész: "Special requirements, toxic media, explosion hazard – that's where we do best with KLINGER products. Our customers know they can trust the brand." Generally, Soltész + Soltész has a very strong presence in the oil refinery sector: The MOL group, with headquarters in Budapest, is one of their biggest customers. Apart from being an energy supplier, MOL also owns more than 2,000 filling stations all over Central and Eastern Europe. Soltész has been an important supplier of valves to them. In fact, this business relationship was kicked off by KLINGER products with the KLINGER KVN piston valve and KLINGER ball valves, used by MOL. In 2021, more than 50 percent of Soltész + Soltész's sales were still generated in the oil, gas, and petrochemicals sectors.

Delivery within two days

Being the exclusive KLINGER 'dealer' in Hungary, Soltzész + Soltész mostly caters to national companies. Says Soltész: "To make sure we can deliver to Hungarian customers within two days, we have everything in stock at all times. Goods are sent from Gumpoldskirchen to our warehouse in Budapest every week, each delivery consisting of 1.5 – 2 tons of goods."



Company founders and CEOs Györgi and György Soltész holding a symbolic product statue at the company's 30th anniversary celebration

Continuity in unpredictable times

György Soltész, who celebrated his 66th birthday in 2021, has seen many companies come and go. "The world of work has changed. People switch jobs faster, you always meet new people at distributors, and of course COVID and currently also the war in our neighboring country are impacting on on the market. Still, we have had this stable partnership with KLINGER for 25 years." Soltész has worked with KLINGER for almost the entirety of their 30-year existence and has never looked back. "In times like these," Soltész adds, "continuity is something you can't express in numbers."

The company motto:
Quality, Expertise, Reliability

From left to right:
Christoph Klinger-Lohr (CEO KLINGER Group), Kaya Kaya (MD Salmarcon), Michael Sautter (KLINGER's Business Unit Director Sealing), Feridun Ozok (Technical Coordinator Salmarcon)



Salmarcon's factory in Çanakkale, Turkey



Founded in 2009, Salmarcon soon became KLINGER's top distributor in Turkey.

KLINGER's sales partner Salmarcon A.Ş. is Turkey's leading specialist in high-quality industrial sealing products, fluid control, gaskets, bolts, nuts, stud bolds, washers, and associated services. Nowadays, the company has a revenue of nearly 3 million euros and employs over 40 people.

info@salmarcon.com

The history of Salmarcon starts off with KLINGER Dichtungstechnik (KDT) actively looking for Turkish sales representatives in 2009. As KDT's former Sales Manager Hans Forstner remembers: "In the application process, Kaya Kaya immediately made clear that he was the right guy. He was only 28, came fresh out of one of the country's most prestigious universities, had a profound insight into the Turkish market, and was looking for a challenge."

Close cooperation with Austrian experts

Forstner invited Kaya over to Austria and taught him everything he needed to know about seals and gaskets. On site at the Gumpoldskirchen factory, Kaya dived deep into the specifics of each product he was about to put on the Turkish market. Back in Turkey, he instantly got in contact with potential customers. Still, the beginnings of Salmarcon were modest: just one room, 40 m², no heating, no air conditioning. "Three years later, in May 2012, I started my own company," remembers Kaya. "I hired an assistant who is still with me, a driver, and rented a small storage space. I built those shelves myself and must have carried 2, maybe 3 tons of material with my own hands."

16,000 m² of sealing sheets per year

Over the course of a year, he managed to convince more and more customers of the reliability and extreme durability of KLINGER products. Finally, in 2014 Salmarcon rented an additional 200 m² (100 m² as office space, 100 m² for the workshop) in the industrial area. In November 2013 Feridun Ozok, Kaya's Technical Coordinator and consultant, joined the company. Today, the company cuts 16,000 m² of KLINGER's sealing sheets per year. Customer retention has recently risen from 65 to 84% within a year. There is certainly a reason for this – most customers keep coming back!

Salmarcon premises today: 10,000 m² in total: 7,500 m² buildings – 6,000 m² workshop and 1,500 m² office space

Salmarcon keeps expanding its capacities and optimizing its production processes to guarantee top-quality sealing products and prompt delivery. A new factory is currently being built: 5,000 m² land: 4,000 m² workshop – 3,500 workshop and 500 m² office (planned completion: end of 2022).

Servicing customers locally

Soon Salmarcon extended its business by buying machines to produce metal gaskets in Turkey. In 2017, a new factory was built in Çanakkale, an area famous for technological and industrial development. The expansion paid off but also the soft sealing business grew steadily: "Right now, I'm cutting 250,000 pieces of gasket per day," says Kaya proudly. "Our products are used within a wide range of industrial sectors, including oil and gas, chemical, nuclear, pulp and paper, power generation, transportation, food applications, steel, heating systems, and original equipment manufacturers." And the expansion continues. In November 2021, Salmarcon opened a new branch in Bucharest, Romania, in order to supply customers with KLINGER products there, following the example of Turkey.

Solar power for Turkish deliveries

Asked about his plans for the future, Kaya gets enthusiastic: "Sustainability is the key: Just now, we're attaching solar panels on the factory roof. We will reach a total output of 1.5 megawatts. My goal is to make this a 100% green company. In the near future, we will put an electric charger in front of the premises so that company cars and delivery trucks can run on sustainable energy." Industry 4.0, AI, and smart production processes are also high up on his agenda.

The secret of wise storage

One last question to Kaya: What is his secret of success during those hard COVID times? "We always kept stock, huge amounts of stock," Kaya answers quickly. "We need to be able to deliver at all times. I had all the sheets in stock, always, because our customers trust in us. If there is one thing I realized over time, it's this: In the sealing business, customers are extremely loyal. If the products hold what they promise; if the quality is reliable, durable, worth its money, they will stay with us. And KLINGER products keep their promises."



6,000 m² of the latest production technologies and storage space

SUSTAINABILITY COME TRUE




KLINGER
Denmark
services a unique geothermal system in Iceland.
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KLINGER UK
merges sustainability with a superior customer experience.
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Dichtungstechnik
in Austria is supporting the United Nations' sustainable development goals (SDGs).
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Austria's district heating networks have a total length of 5,600 kilometers. Read how district heating is helping to achieve climate targets.
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© Blue Lagoon

Reykjavík/Iceland

A warm welcome

KLINGER Denmark serves unique geothermal systems in Iceland: The Blue Lagoon, a popular tourist attraction, is supported by KLINGER's Ballostar valves.

A famously busy travel destination, the geothermal spas at the Blue Lagoon near Reykjavík, Iceland, are renowned for their unique chemical composition. The milky blue water's mineral content is said to offer restorative properties to the skin, attracting visitors from all over the globe. While praised for their effect on the body, the silica and salts of the geothermal waters create a unique challenge for the valve system that supports them.

Mixed material seats create the ideal ball valve

Geothermal water chemistry is dictated by the microelements in the reservoir rock and in the subsurface environment. In Iceland's water supply, this results in a high concentration of silica, salt, and other hard minerals, which cause a build-up of sediment in the valves. This creates a need for more frequent system service.

Geothermal energy

» Geothermal water is obtained by drilling into natural hot springs, which can be found at the edges of continental plates.
» Iceland's geothermal power plants produce more than 25% of the nation's electricity.
» Geothermal space heating reduces Iceland's CO_2 emissions by 40% compared to an equivalent amount of fossil fuel use.

Wells in the aquifers bring the geothermal water to the surface, where it is then pumped to control units that prepare the water for distribution. Within the control units are KLINGER Ballostar KHA DN25-50 valves, which feature a combination seat. On one side, a metal seat, which stands up to the rigors of the constant sediment buildup. On the other side, KLINGER Fluid Control's popular soft seat, which adheres to ensure a tight seal. As the Ballostar valves are actuated, the friction against the metal seat removes the sediment buildup, allowing the system to remain in use for longer periods of time without service.

Explains Martin Sillassen, Key Customer Manager for KLINGER Denmark, "Of course, regular maintenance contributes to a longer service life of a ball valve. But regardless, Ballostar ball valves are in service longer than any other kind of ball valve."

After the water leaves the control units, it is pumped to 13 distribution boxes among the lagoons. Each box contains a KLINGER Ballostar KHA Stainless Steel ball valve and actuator that controls the water flow and temperature, keeping the lagoons at a steady 38°C (100,4°F) while refreshing the water every 24 hours. These distribution boxes float on platforms throughout the lagoons, creating distance between the original sourced water and the mixed water, for the safety of both guests and service personnel.

Hot water for Reykjavík

The lagoons are not the only geothermal project in Iceland for which KLINGER was able to provide a superior valve product.

> "Of course, regular maintenance contributes to a longer service life of a ball valve. But regardless, Ballostar ball valves are in service longer than any other kind of ball valve."

Martin Sillassen,
Key Customer Manager
for KLINGER Denmark







District heating lines (left) and Jónas Þór Markússon (right), Operations Manager Varma Velaverk with a Ballostar KHI DN600 valve

Four geothermal lines supply heated water to Iceland's capital, Rejkavik, in a challenging heavy-use district heating system that requires a valve capable of handling 27 bar. Veitur Utilities called on KLINGER to develop a solution that offered minimal water effect on the pipe during closing while still meeting the customer's requirements. With the help of sales partner Varma & Vélaverk, KLINGER performed the necessary calculations to determine the appropriate product to meet Veitur's needs.

The Ballostar KHI DN600 valves were fitted with a special Auma actuator setup including battery packs ensuring the correct closing time under every condition. With the completion of Veitur's project, then, KLINGER cemented Ballostar valves as a flexible family of products achieving success throughout Iceland, suitable for meeting multiple specialized geothermal and district heating needs for both public and private use.



One of many valve distribution boxes making for a relaxing swim in the Blue Lagoon, Iceland

KLINGER Ballostar KHA (l.) and
KLINGER Ballostar KHI (r.)



Bradford/United Kingdom

Sustainability meets superior customer experience

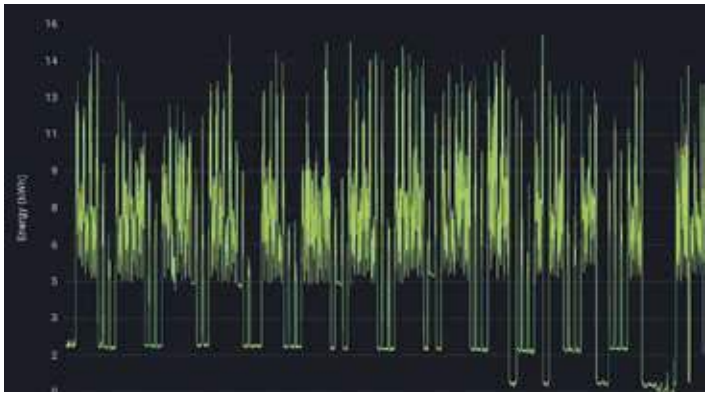
KLINGER UK's energy management and integrity services show how KLINGER lives its values regarding net zero emissions compliance.

The last few years have brought ambitious energy initiatives to the UK, whose exit from the European Union sparked a flurry of changes to laws and trade agreements. With the UK no longer held back by conservative emissions goals set by the EU in deference to coal-dependent member countries, the British government was free to set higher-reaching standards for its carbon budget. In 2021, Britain announced the most stringent climate law the world has ever seen, pledging to cut emissions by 78 percent by 2035. Reaching this goal will put the UK more than three-quarters of the way to reaching net zero emissions by 2050, a pledge that was set forth in the EU-UK Trade and Cooperation Agreement (TCA) in late 2020.

UK businesses have mirrored the government's strategy, starting by making drastic modifications to their energy practices and then fine-tuning the results. After a year of smart energy management with ClearVue IoT software, KLINGER UK Maintenance Manager Alex Long is ready to shift from big changes to small refinements. When the initial plant assessment found that the air compressor system needed remediation to address air leaks, the team was able to slash energy use by 15 percent right away. After repairs, long-term monitoring provided the data they needed to prove that the compressors were consistently shutting down and turning off at the correct times. By default, this and other facility systems now operate in standby mode, only running when needed. Explains Alex Long, "There's very low usage outside of operating hours, which shows that the system we put in place is working as designed. The data is showing constant, incremental improvements now."

Small changes, big results

Further investigation into the air compressors drew the team's attention to the control units, located in an outbuilding that was accessible only to maintenance personnel. Because the location required safety clearance, production staff were unable to access the controls for troubleshooting or resetting. Moving the control units to the production floor allowed 24/7 access by production staff, saving the time



Air compressor sensor data in ClearVue



Air compressor control unit in new location

and money previously spent waiting for an on-call member of maintenance to arrive and access the secured area. Alarms were also installed on the compressors to allow production staff to quickly diagnose any problems without extensive inspection of the system. As Alex Long points out, “It’s a simple change, but one that allows us to run the compressor system more effectively. We save running costs and energy, which is obviously the main goal.”

“Off unless needed” as the new standard

Manufacturing is not the only part of KLINGER that saves energy by defaulting to standby mode. The pandemic also presented an opportunity to develop good energy habits in-office. With quarantine protocols in place, the facility saw significantly less foot traffic, which minimized the variables involved and allowed the team to determine an energy baseline to work from. Energy tracking allowed the team to adjust lighting and thermostat settings to use minimal power and encouraged returning office workers to lower their energy use: shutting off lights and turning off computers at day’s end. The IT department determined that switching to a cloud-based system would reduce servers on site, streamlining services and minimizing the use of power to run and cool the system.

With air and electricity improvements underway, the team is expanding their reach to other parts of the facility. Next on their agenda is studying the power coating and water jet systems, in order to streamline the use of water and gas. Alex Long is confident that their energy management system is up to the task, pointing out that small changes add up to big wins. “We find out where we’re underperforming and improve the efficiencies of that department, then we move on to get a bigger, better view of the factory as a whole.”

KLINGER Integrity Services: full service for more sustainability

With KLINGER UK on track to meet its energy goals in-house, it also developed services to improve its customers’ energy efficiency. This led to the creation of a new business model: KLINGER Integrity Services.

Integrity Services combines KLINGER products with KLINGER services to create bespoke facility packages for each customer. From early system design to product installation, to final testing and verification, KLINGER Integrity Services handles the entire project from start to finish. This product and service package comes with KLINGER’s leak-free guarantee, ensuring that the facility creates the minimum possible fugitive emissions.

Paul Smith, Sales Director of the KLINGER UK Business, was eager to offer clients a whole solution to meet their needs. “The market didn’t have anybody else offering an end-to-end service,” he said.

“We self-manufacture the products, we consult using our own engineering specialists, we provide our own software, we offer our own processes and practices, and can allocate field personnel if required.”

Customizable plans offer KLINGER expertise at every point along a job’s timeline, from pre-shutdown reviews and system design calculations to installation and on-site inspection, to electronic system monitoring for long-term data collection and predictive maintenance.

KLINGER subject-matter experts

manage a project from start to finish, with products and services such as:

- Product installation
- Controlled bolt torquing and tensioning
- Ultrasonic bolt monitoring and inspection
- On-site flange machining
- On-site flange facing repairs
- SENTRY gasket installation and testing
- Pipe cutting and beveling
- Leak detection and repair (LDAR) services
- QA & QC (quality assurance and quality control) inspection
- TAR (turnaround), shutdown, project planning & management

» **Download Integrity Services case study**

The Integrity Services process:





Safety: integrated approach to safety ensures zero harm to people, plant and environment

IntegrityXpert: comprehensive joint integrity management system including ASME PCC-1 and EN 159/1 design calculations

On-site engineering: integrated engineering solutions designed to eliminate unplanned downtime

Cost savings: demonstrated cost reduction through ownership of the full integrity process as well as reduction in fugitive emissions

Critical path: management of critical path items from design through to installation and testing

Right first time: right first time philosophy, reducing risk whilst increasing safety and efficiency

Innovation: innovative integrity solutions for problematic application

Global services: worldwide footprint with over 100 years of service line experience

"We self-manufacture the products, we consult using our own engineering specialists, we provide our own software, we offer our own processes and practices, and can allocate field personnel if required."

Paul Smith, Sales Director of KLINGER UK





IntegrityXpert system dashboard

IntegrityXpert handheld device

Customization and flexibility for personalized service: KLINGER's Integrity Service software

A key feature of Integrity Services is the IntegrityXpert management system, featuring KLINGER's proprietary gasket-sealing data and bolting calculators. This software is used to engineer an entire fluid control system to exacting specifications, using information not available to other service providers. Customized modules provide integrated features, such as HTML drawing for detailed engineering mark-ups, QA & QC dashboards for on-site inspections, and real-time reporting in multiple locations through handheld devices and web applications. Clients have fingertip access to all aspects of their facility, with historical data available within just a few clicks. This system greatly eliminates manual work. All forms, checklists, and signatures can be logged electronically. And, most importantly, it delivers the plant operator real-time data on the integrity of his facility.

Michael Pallister, Services Director at KLINGER UK, explains that flexibility is key: "We are a mechanical services company who have developed a key piece of integrity software. Approaching our clients from a services perspective allows us to develop bespoke solutions to fit their requirements and site processes."

Customers can buy or license the software themselves, or have KLINGER manage the software on their behalf. On-site specialists are available for every aspect of the system life cycle, for design and installation only, or even as permanent plant personnel for clients who need continuous monitoring and on-demand repairs.

"We are a mechanical services company who have developed a key piece of integrity software. Approaching our clients from a services perspective allows us to develop bespoke solutions to fit their requirements and site processes."



Michael Pallister, Services Director at KLINGER UK

KLINGER Integrity Services engineer carrying out site survey using IntegrityXpert



Safe people, safe plant, safe environment

Key to Integrity Services is KLINGER's commitment to safety, which ensures no damage to the people, to the plant, or to the environment. High-end products, exhaustively trained specialists, state-of-the-art software and industry-leading testing and procedures all play a role in this safety-centric, eco-friendly process.

The SENTRY gasket is one of those high-performing products. It can maximize plant uptime, reduce emissions, and increase efficiency. A safe, high-integrity seal that provides operators with the ability to test the integrity of a bolted connection. The SENTRY helps reduce the need to involve large volumes of nitrogen and reduce downtime whilst performing integrity and pressure tests, maximizing plant uptime and efficiency.

Benefits of the SENTRY gasket

- Allows leakage testing on individual flanged joints without the need to pressurize the full system
- Speeds up the leakage testing, reducing plant downtime
- Validates individual joint integrity at installation, reducing the need to re-visit the joint

» Download SENTRY gasket case study

Three convincing arguments for the EcoSeal gasket

1. High-density construction and modified winding strip combine to create a spiral wound gasket up to 10 times tighter than a regular gasket.
2. EcoSeal reduces fugitive emissions throughout a system, allowing customers to meet or exceed ASME B16.20-2017.
3. Precise testing by KLINGER across multiple sizes and class ratings provides tangible leakage metrics.

Another star performer of KLINGER's green product line, the EcoSeal gasket, is the newest member of this team. The tightest spiral wound gasket the company has ever produced, the low emission EcoSeal can play a key role in tracking plant emissions. KLINGER UK developed fugitive emissions testing data for the entire EcoSeal product line, which provides customers with the hard numbers they need to determine plant emissions and set green ratings goals. Combined with the Integrity Services leak-free guarantee, this system ensures that customers will be able to meet the stringent emissions standards set by the UK.



The ring-type joint gasket from KLINGER's SENTRY gasket range



EcoSeal gasket: 10 times tighter than any other spiral wound gasket



Trained tech expert performing on-site inspections

KLINGER Integrity Services employee using a flange spreader





Bolting technician tightening a wind turbine application with state-of-the-art torque equipment



KLINGER Integrity Services employee performing on-site machining repairs

Employee training is another aspect of this winning combination. KLINGER's Integrity Services team members all meet expert qualifications, have passed a skills test, and look back on at least five years of experience in the industry. Subject-matter experts on system design, joint integrity, flange face machining, and pipeline management are only a few of the available options. Integrity Services personnel are also available to serve as QA & QC representatives, assessing critical valves in the system before taking the plant back online. Further, ECITB, EN1591, and ASME PCC1 joint integrity training are available to give customer staff the tools and knowledge they need to maintain the system. KLINGER's expert workforce offers our clients an invaluable, competent resource to support their assets during peak periods such as shutdowns and construction projects.

Tracking fugitive emissions with LDAR services

The third piece of the Integrity Services approach is the industry-leading testing and procedures that Integrity Services provides. Problematic joints can be machined on site and fitted with custom gaskets, in addition to being monitored with cutting-edge ultrasonic measuring equipment, while post-installation LDAR (leak detection and repair) can track and measure fugitive emissions to ensure environmental efficiency and create cost savings.

With so many customized options to choose from, customers are certain to find an Integrity Services package that meets the specific needs of their facility. Paul Smith is confident that customers will see the value in a fully integrated products and services provider: "Normally one provider is offering manufacturing, while another provider is offering service. By doing both, we're offering the client a guarantee, we're offering him confidence that we're doing each step. We're reducing risk, we're reducing interfaces, and we're reducing costs."

» **Learn about the complete Integrity Service offering**

The EcoVadis silver medal for environmental and social responsibility

Gumpoldskirchen/Austria

CSR with certificate and medal

KLINGER Dichtungstechnik was awarded the silver medal for sustainability by EcoVadis. In addition, by signing the UN Global Compact, the company is supporting the United Nations' sustainability goals.

Sustainable action has always been a priority for KLINGER Dichtungstechnik (KDT) in Gumpoldskirchen. Now the various activities in the area of CSR have been evaluated and confirmed by an external body: The EcoVadis medal of sustainability, which takes not only environmental responsibility but all aspects of social responsibility into account, was awarded to KDT on June 25, 2021.

Comprehensive evaluation

The EcoVadis certification is only awarded after a comprehensive evaluation. A total of 21 sustainability criteria in the four subject areas of environment, labor and human rights, ethics, and sustainable procurement are evaluated with the help of a questionnaire and the results are assigned a ranking based on the industry and company size. In addition to the activities that have been implemented, CSR awards and certifications that have already been received also play a role.

"Gathering all the information for the questionnaire was time-consuming, but it was worth it," says Stephan Piringer, Managing Director. In a comparison with 4,134 other companies from the rubber and plastics industry, KLINGER Dichtungstechnik achieved above-average results and was ranked in the top third. The next evaluation started in March 2022. Until then, KDT strives to improve even more so that next time it can possibly achieve gold status.

UN Global Compact signed

In mid-June, KDT also joined the UN Global Compact, the world's largest initiative for corporate responsibility. With this step, KDT commits to working towards the sustainability goals of the United Nations. "The EcoVadis submission was the impetus to consider the areas in which we can do even more for sustainability. Because there is always room for improvement," says Piringer.



KLINGER Dichtungstechnik can contribute in particular to three development goals of the United Nations with its product portfolio and careful use of resources in the manufacturing process: "Clean water and sanitation", "Responsible consumption and production" and "Climate action".

> "Since receiving the medal, we have started other specific projects, for example to raise employee awareness of ethics, to further increase employee protection and to encourage our suppliers to engage in corporate social responsibility."
>
> **Stephan Piringer, Head of R&D at KDT**



Herbert Hutter (2nd from left), Mixer Foreman, and Patrick Leeb (1st from right), TopChem Production, have been appointed as safety representatives. Photographed on the safety inspection with Stephan Piringer and Ingrid Stassner in front of the bust of Richard Klinger

From now on, KDT will send an annual report to the UN on the activities it has undertaken to achieve the UN's 17 Sustainable Development Goals (SDGs). Such sustainable activities are constantly being implemented, as Piringer explains: "Since receiving the medal, we have started other specific projects, for example to raise employee awareness of ethics, to further increase employee protection and to encourage our suppliers to engage in corporate social responsibility."

Upholding environmental protection

The commitment to the environment at KLINGER Dichtungstechnik has been remarkable for many years. The company was one of the first to sign the EU's voluntary environmental management system (EMAS) back in 1998. As an industrial company, KDT is aware of its responsibility and pays attention to resource-saving and low-emission production. For example, material waste that occurs at the partnered punching companies is retrieved, then the material is ground and returned to production. With the construction of a plant for regenerative afterburning, the company can now save 150 tons of CO_2. The resulting improvement in waste heat recovery reduced the need for thermal energy. For a number of years now, 100 percent of the electricity has also come from hydropower.

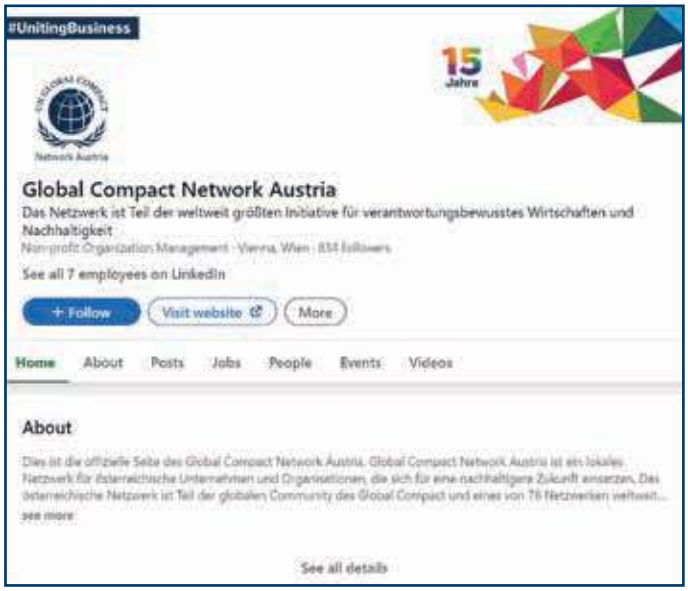
Work safely

Safety at the workplace is particularly important in production and is ensured by numerous measures. Since the beginning of 2022, KDT fulfills ISO 45001, the global standard for occupational safety and health management systems. The certificate not only ensures that safety standards are being met, protecting both employees and visitors from harm in the workplace, but also increases performance and qualification of the team members as it requires their active participation. "We can only further increase safety if the employees are directly involved," Piringer is convinced. To ensure that potentially dangerous situations are recognized before anything happens, two safety officers have been appointed: Herbert Hutter, Mixer Foreman, and Patrick Leeb, TopChem Production, are the contacts for safety issues. Each quarter, they inspect the production and commercial buildings together with Piringer and discuss possible safety upgrades.

Potentially questionable CMR substances are also meticulously tracked down throughout the manufacturing process and, whenever possible, exchanged for harmless substances or even removed without replacement. A control tool ensures that these hazardous substances do not find their way back into the operations, for example when there is a change in suppliers.

Sustainable procurement

Stephan Piringer sees a need for improvement in sustainable procurement. Supply chains are rarely completely transparent, and there is no corresponding legal framework. "In order to select the most sustainable supplier from a selection of several, otherwise equivalent suppliers, we have developed a supplier code and created a sustainability questionnaire." This allows KLINGER Dichtungstechnik to evaluate its suppliers in terms of sustainability and social responsibility. Suppliers who can provide a sustainability certificate in addition to a correspondingly high-quality product make a much stronger argument for a partnership with KDT.



KLINGER Dichtungstechnik was welcomed on social media as a new member of the UN Global Compact.

Marchtrenk/Austria

Smarter heating

Sustainable and efficient – district heating is on the rise and helping to achieve climate targets. The planned expansion benefits both the industry and the environment.

If you add them up, Austria's district heating networks have a total length of 5,600 kilometers (approximately 3,500 miles). By the year 2030, this will have increased to 6,500 kilometers (4,000 miles), or roughly the length of the Earth's radius. That is the prediction of the Association of Gas and District Heating Supply Companies (FGW). 27.8% of the apartments in Austria were heated with district heating, and the trend is rising. In order to achieve the EU's emission targets, we have to move away from oil heating systems. District heating from biomass or industrial waste heat is an important alternative, and an important growth market: Due to the resolution of the Renewable Energy Expansion Act (EAG), more than 150 projects, some of which have been on hold for years, will be implemented in the near future.

Thanks to new rules for investments in the energy transition, these projects have now been given the green light. At the same time, this is also the starting signal for increased decarbonization of district heating in Austria by 2040. These projects also mean an increased demand for piping components. Due to the expansion of district heating, more and more customers are being connected to the district heating network. This network connects the consumers with the producers, i.e., power plants, where heat and electricity are generated at the same time (combined heat and power). Further means of heat production that are



Where you find KLINGER in district heating

Generation

No matter whether it's geothermal energy, waste incineration or combined heat and power generation and sewage treatment plants, you will find KLINGER technology at key points in systems essential for generating heat. KLINGER supplies a comprehensive range of products specifically for this purpose.

Suitable products:

» KLINGER ball valve Ballostar KHSVI / KHSVI-VVS DN 150 – 1000 PN 25-40
» KLINGER ball valve Ballostar KHA DN 15-125 PN 40
» KLINGER ball valve Monoball KHO DN 15-250 PN 16-40
» KLINGER piston valve KVN DN 15-200 PN 16-40
» KLINGER AB cocks
» KLINGER gaskets Graphite Laminate PSM, KLINGERSIL, KLINGER TopChem
» KLINGER metal expansion joints and fabric expansion joints
» Electric drives
» Butterfly valves (flue gas, single, double and triple eccentric)
» Gate valve



KLINGER ball valve
Monoball KHO – flanged



KLINGER TopChem2000 gasket

Distribution

Pipelines, manhole structures and pump stations: The components of a district heating network are highly technical and must be reliable to ensure the supply.
In addition to ball valves and piston valves, KLINGER also supplies gaskets, electric drives and butterfly valves for use in this area.

Suitable products:

» KLINGER ball valve Ballostar KHSVI / KHSVI-VVS DN 150 – 1000 PN 25-40
» KLINGER ball valve Ballostar KHA DN 15-125 PN 40
» KLINGER ball valve Monoball KHO DN 15-250 PN 25
» KLINGER piston valve KVN DN 15-200 PN 16-40
» KLINGER AB cocks
» KLINGER gaskets Graphite Laminate PSM, KLINGERSIL, KLINGER TopChem
» Electric drives
» Butterfly valves (double and triple eccentric butterfly valves)

Transfer

The transfer from the primary heating circuit, which is connected to the heat source, to the consumer's secondary network is the last building block in the district heating network. Ball valves, piston valves, etc. also come from KLINGER.

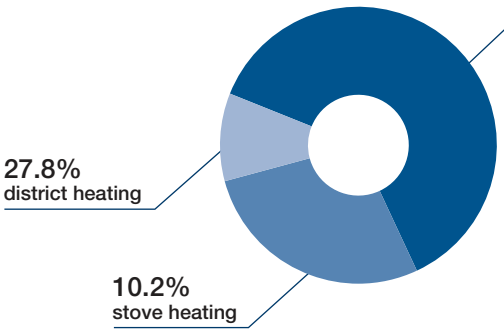
Suitable products:

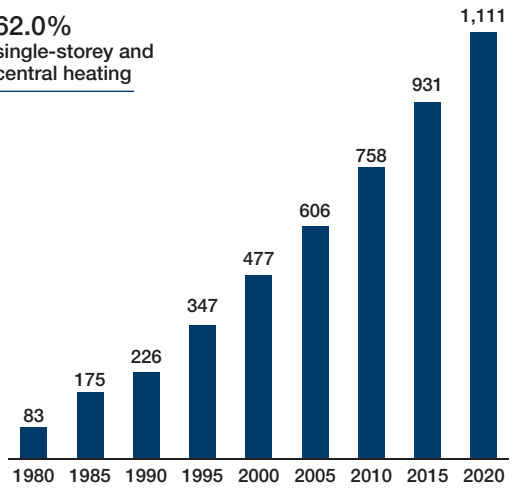
» KLINGER ball valve Ballostar KHA DN 15-125 PN 40
» KLINGER ball valve Monoball KHO DN 15-250 PN 25
» KLINGER piston valve KVN DN 15-200 PN 16-40
» KLINGER AB cocks
» KLINGER gaskets PSM, KLINGERSIL, KLINGER TopChem
» KLINGER district heating stations Combistar FWF and ECOm
» Electric drives
» Butterfly valves (double and triple eccentric butterfly valves)



KLINGER district heating station Combistar FWF40

District heating already accounts for more than a quarter of all forms of heating in apartments.

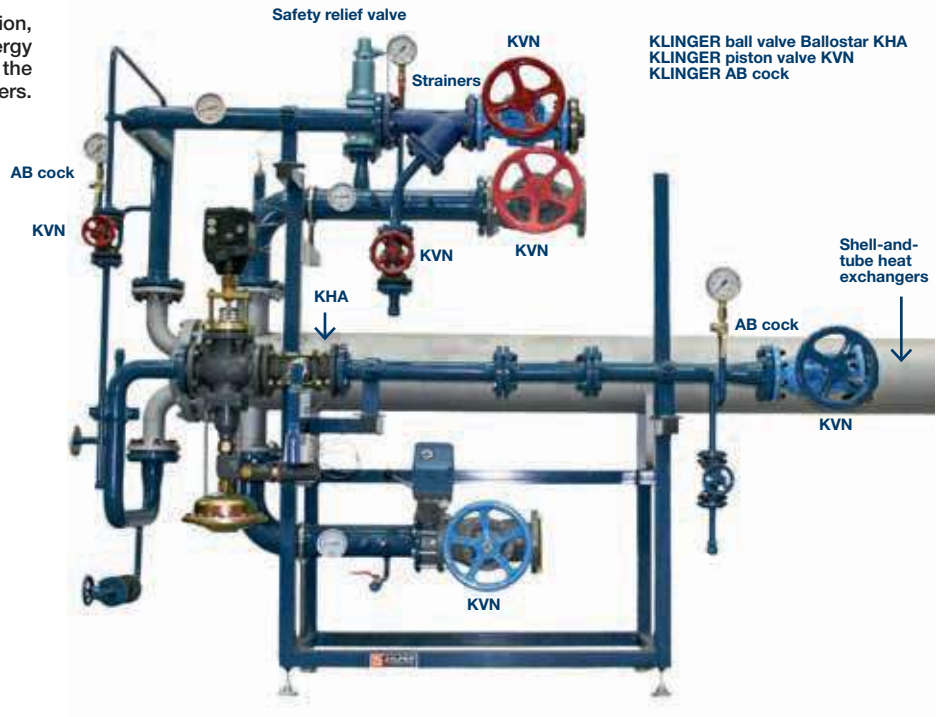




Homes by heating type in 2020 and development of homes supplied with local/district heating

Source: Statistik Austria

At the transfer station, the thermal energy is distributed to the consumers.



© Andreas Stubenvoll

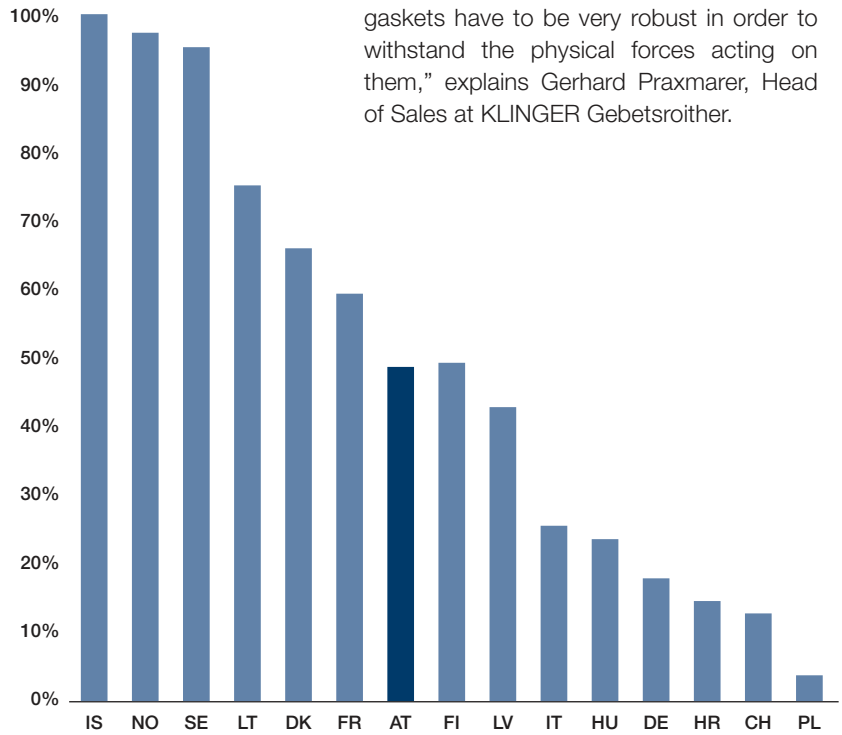
particularly sustainable are thermal recycling of waste in incineration plants and the use of waste heat from industrial and sewage treatment plants with the help of large heat pumps.

Always in the flow

In order to keep heat loss to a minimum, pipes are carefully insulated before they are buried in the ground or laid in collector corridors. The water flows through the pipes at between 90°C and 160°C (194°F and 320°F). The high temperatures allow as much energy as possible to be transported. In addition, the pipes are under high pressure: "The medium has to be put under pressures high enough to overcome the varying elevations in the supply area. All of this puts a lot of strain on the material. Not just the pipes, but also the valves and gaskets have to be very robust in order to withstand the physical forces acting on them," explains Gerhard Praxmarer, Head of Sales at KLINGER Gebetsroither.

District heating is always flowing: The hot water flows from the producer, transporting the energy to the consumer, and then returns back to the heat source as cooled water. "This circulation loop can often extend for kilometers and must be designed with such consistency that there are no interruptions in supply," says Praxmarer. For the consumers, it is extremely important that heat is delivered reliably. Unlike heating oil, the price of district heating hardly fluctuates. In terms of price, it is one of the most reliable types of heating, and certainly one of the most environmentally friendly. Already 50 percent of the energy in Austria's district heating networks comes from renewable sources. In the future there will be even more, which will also lead to increased demand for KLINGER products. After all, there is no district heating network without ball valves, piston valves and compensators.

When it comes to renewable heat generation, Austria is in the middle of the European rankings.



Renewable shares in heat generation in international comparison

Source AT: Statistik Austria (Data as of 2019)
Source of all other countries: Web Research

"The economic benefit is enormous"

Peter Jurik is a consultant in the field of heating at the Association of Gas- and District Heating Supply Companies (FGW). He sees a bright future for district heating.



Peter Jurik studied green energy technology at the Wels University of Applied Sciences and has been representing the interests of the Austrian district heating industry at FGW for over ten years.

Mr. Jurik, FGW expects the district heating network in Austria to be expanded to 6,500 kilometers (4,000 miles) by 2030. What is this forecast based on?

Jurik: The data is based on inquiries from our members. They tell us what expansions they are planning and which regions they want to open up. Due to the current political development and the Renewable Energy Expansion Act, we will probably revise the forecast upwards.

Why is district heating booming?

It has the advantage of being extremely flexible when it comes to heat generation: solar thermal energy, waste heat from waste incineration, industrial waste heat – the list of energy sources is very diverse. Almost 50 percent of the energy in Austria is already obtained from renewable sources. There is also a decarbonization strategy up to 2040 that sheds light on technologies with which we can operate district heating entirely without fossil fuels. The use of renewable gases and solid biomass from the region will play a central role in metropolitan areas. The same applies to waste heat and, wherever possible, geothermal energy to replace fossil oil and gas. This is particularly good for the area as a business location.

In what way?

The expansion of district heating means moving away from importing raw materials, thereby reducing dependency on oil and natural gas supplied by other countries. In return, local raw material producers, regional heating networks and the domestic industry benefit through jobs and added value remaining in the country. The economic benefit of district heating is enormous thanks to the efficient generation and distribution of energy, because fewer raw materials have to be used. In addition, district heating suppliers can use technical developments without having to make modifications to the heat consumers. And finally, the climate benefits: In Vienna alone, district heating saves 1.5 million tons of CO_2 every year, the amount emitted by all the private cars in the city together.

How much more energy will be required after the expansion of district heating?

Although we expect district heating connections to grow by 50 percent by 2050, we assume that demand for heating will not increase significantly. New buildings are increasingly being built with low or zero energy standards, and building renovations are also progressing hand in hand with efficiency gains in the district heating supply. That is why we assume that energy consumption will increase from 20 to 27 terawatt hours by 2050, and we can handle that.

Will consumers also go along with this? How is the image of district heating?

When it comes to cleanliness and convenience, district heating has an outstanding image. Where we don't fare so well is the price. Many still think that district heating is on the expensive side because they compare the costs with the prices for wood, electricity or gas. We have to communicate even better that we are delivering an all-inclusive product where you don't have to worry about anything.



District heating is supplied from a variety of sources: solar and wind systems, waste incineration, biomass, geothermal energy, and industrial waste heat



Khi Solar One's solar tower

Wadeville/South Africa

A light in the darkness

KLINGER South Africa provides timely maintenance to Abengoa's Khi Solar One solar plant valves.

As South Africa's first and only thermal solar tower plant, Abengoa's Khi Solar One (KSO) knew that it needed an immaculate strategy when it came to its planned outage for maintenance. Global supply chain shortages and challenging geography meant that a tear down and refurbishment plan would require all moving parts to work perfectly in sync, so that no link in the chain would cause delays.

KLINGER South Africa (KSA) was up to the challenge. Under the guidance of Tommie Vogel, KSA's Key Account Manager for Renewable Energy, the KLINGER team first visited KSO on site to develop a scoping plan, then conducted weekly virtual meetings with the KSO team in order to dissect every aspect of the project, from start to finish.

Keeping scope creep under control

This detailed strategy served the team well, when unexpected challenges arose partway through the refurbishment process. The initial scope of 48 valves soon increased to 63 valves, as a tear down revealed much more extensive wear than the team had originally anticipated. Four separate KLINGER locations pitched in to conduct both on-site and off-site refurbishment work to keep the project on track, returning the valves to a proper leak-free working state.

The KLINGER team hard at work



Solar superlatives

- The Khi Solar One tower is 205 meters tall and saves 183,000 tons of carbon per year.
- The Khi Solar One tower can reach a maximum operating temperature of 530°C (986°F).
- The Khi Solar One plant covers 140 hectares in the Northern Cape Province, South Africa.
- The Khi Solar One solar field is made of more than 4,000 heliostats, for a total of 576,800 m^2 (6,208,624 square feet) of mirror surface.

Did you know ...

... what "lapping" means?
Lapping is the process of machining or sanding the valve head and valve seat to ensure a leak-tight fit between the two parts.

... how valves are tested for leaks?
After lapping, a blue dye is applied to the valve head and valve seat. The dry valve is actuated through several cycles, then inspected. Any areas where dye remains are low spots that aren't sealing completely and thus need further work. This cycle of lapping and testing should be continued until no blue spots remain. Colloquially, this is known as a 'blue test'.

... how often system valves should be lapped?
System components experience wear based on a variety of factors, including valve construction, fluid media, and cycling time frames. Contact your KLINGER representative to discuss an appropriate inspection and maintenance schedule for your needs.



KLINGER pride on the job site

Abengoa's Maintenance Manager Hein van Heerden, "The outage saw many unplanned challenges, but Tommie and the KLINGER team gave timely feedback and suggestions. By doing this, we had time to think about solutions, and to plan the extra work properly."

Custom repair and improvements

KSO's plant valves were at the end of their life cycle, so bonnet leaks were one of their concerns. KLINGER's full refurbishment process uninstalled the valves, disassembled them, machined flanges and lapped seats, repacked glands, rigged and reassembled bonnets and hardware, and aligned and torqued the flanges and hardware. All valves were leak tested and documented.

Because the discovered level of valve wear required more machining than usual, KLINGER conducted a thorough material examination, and recommended a change of gasket hardness to provide a better match for KSO's valve usage patterns. This presented an additional challenge to the KSA team, since getting the new gaskets to South Africa from India during COVID-19 restrictions was a tall order. KSO agreed with KLINGER's suggestions for system improvements, and also requested assistance with additional machining, torquing and lapping for other flanges, beyond the original scope of the project.

Success through team work

The KLINGER team enjoyed their success, as Abengoa's Khi Solar One started up the plant on time and leak free. After six months of successful operation, KSO requested that KLINGER return for its next planned maintenance outage, in April 2022. With a plan in place, KSA looks forward to the opportunity to again provide KSO with the high quality, punctual work for which the KLINGER team has become renowned.



**Tommie Vogel,
Key Account Manager –
Renewable Energy**

> "The outage saw many unplanned challenges, but Tommie and the KLINGER team gave timely feedback and suggestions. By doing this, we had time to think about solutions, and to plan the extra work properly."

**Hein van Heerden,
Maintenance Manager at Abengoa**



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