ISSUE APRIL 2023

KLINGER
trusted. worldwide.

KLINGER YEARBOOK

Sealing the Green Deal



www.klinger-international.com





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

Dear Customers,
Dear Partners,

Another eventful year has gone by – we navigated tumultuous waters witnessing the aftermath of a pandemic, an unprecedented energy crisis, and global uncertainty. Despite all those hardships, we at KLINGER were able to achieve multiple successes, some of which we would like to share with you in this latest issue of our YEARBOOK.

Our customers again played a vital part in our success. That is why we want to shine a spotlight on some of our most fruitful collaborations of the past year, from an energy audit in Spain that brought both efficiency and environmental benefits to a chemical plant **(see pages 38 and 39)** to a new power-to-heat system at the Spittelau waste incineration plant in Vienna, replacing a fossil fuel combustion system while also showcasing KLINGER's ability to cater to its customers' needs **(pages 40 and 41).** Many more stories in our section on environmental and social responsibility demonstrate how KLINGER cares about the world we live in.

An alternative perspective on this world is presented in our cover story outlining the KLINGER ecosystem. It spans national borders and often continents, transferring not only products but also valuable knowledge from our subsidiaries all over the world. We invite you to explore the many possibilities within this global network that has been growing for decades on **pages 7 to 9.** Another topic worth exploring is the effort to inspire women to pursue careers in technical sectors. Our new section "Female Engineering" sets the stage for two women who are true role models: Viktoria Heiermann and Jane Abi Aad talk about the challenges of rising through the ranks in a male-dominated business and what advice they would give young women who aspire to follow in their footsteps **(pages 28 to 31).**

Finally, we'd like to give a special shoutout to our sales partners: The Ruml Group and Groupe Efire show through their long-lasting partnerships what it means to be in business with KLINGER – stability, reliability, and trust are the core values of collaborations that span generations of families who have thrived doing business together. With this in mind, we would like to thank you for your business in 2022 and hope you enjoy our review of this successful year. And here's to 2023, another year during which we plan to make a difference in the world while also exceeding expectations.

Christoph Klinger-Lohr
CEO

Daniel Schibli
CEO

Peter Müller
CFO

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5 QUESTIONS

? How many days do the emergency oil reserves at the ELG Group last?

» **Find out on page 26!**

? When did the Czech Ruml family first work together with KLINGER?

» **Read more on page 10!**

? How hot does water get in the two instantaneous water heaters that are at the heart of Vienna's district heating network?

» **Find out on page 40!**

? Who earned a PhD in physical chemistry and now works as R&D Manager of the entire Groupe Efire?

» **More on an inspiring career in STEM on page 30!**

? What does CSP stand for?

a) A new type of valve that offers carefree use, security, and high tolerance of pressure
b) "Concentrated solar power" describing a method of harvesting the energy of the sun
c) A little-known relaxation technique originally developed by Richard Klinger in 1923

» **Think you know the answer? Check on pages 44 & 45!**

Interview with the KLINGER CEOs

“The ecosystem is in our DNA”



Christoph Klinger-Lohr and Daniel Schibli

Review and outlook: Here’s to a “very satisfactory” year in 2022 and an innovation-driven 2023. The CEOs of the KLINGER Group, Christoph Klinger-Lohr and Daniel Schibli, joined us for a YEARBOOK conversation.

In the current YEARBOOK, we are focusing on the KLINGER ecosystem. What is the idea behind this concept?

Christoph Klinger-Lohr: We want to optimally leverage the strengths of our global network and enable our customers to enter at any point in the supply chain. At the same time, we are developing new services that would not be possible without the cooperation of our far-reaching partner network.

Daniel Schibli: For many decades, the strength of KLINGER has been precisely what is now commonly referred to as the “ecosystem”. KLINGER is present worldwide with tailor-made products and services, close to the customer, and strong in all segments of the individual industries. The ecosystem isn’t just important at KLINGER because it’s become popular – it’s in our DNA.

How did this become part of the DNA?

Klinger-Lohr: KLINGER has always placed great importance on maintaining long-term partnerships worldwide. I still remember accompanying my father on his trips to business partners in Norway and being able to learn skiing there with our partners from Bagges. This creates a foundation for connections that last for many decades.

In addition to these sustainable business relationships, the KLINGER Group also values sustainable business practices. What priorities do you want to set in this regard?

Schibli: In addition to the increased use of renewable energies – last year we were able to put new photovoltaic (PV) systems into operation at several locations – the manufacture of durable products is particularly important to us. We do not want to throw mass-produced goods onto the market; instead, we are focusing on quality.

Klinger-Lohr: We are also striving to make our transportation more sustainable. Supply chains should no longer stretch across the entire globe, so we are increasingly switching to inbound supply. This includes optimizing our own distributor network and being as close to the customer as possible with our warehouses.

In 2023, when it could be an economically challenging year for many, how do you plan on supporting your customers?

Klinger-Lohr: Fortunately, we are in a financially healthy position that allows us to be more accommodating of our customers than the competition. This goes hand in hand with an increased service mentality – for example, we ask ourselves how can we better help our customers with their inventory management? This is how we want to support customers who could be affected by a possible recession.

Schibli: We currently do not see any danger of a recession for the KLINGER Group itself. However, we do not know what geopolitical events will occur in the coming months. We have a lean organization and have always been careful to operate in a cost-conscious manner. We also benefit from the fact that many industries are increasingly focusing on efficiency, for which they need our high-quality products. We also have suitable solutions for new technologies such as Power-to-X. In addition, we are financially solid, which helps us to survive any crises or recessions.

So, 2022 went well from an economic point of view?

Schibli: We can indeed look back on a very satisfactory year. Both growth and profitability met our expectations. We have also succeeded in expanding our product portfolio and promoting new developments.

Klinger-Lohr: These results are all the more remarkable because our political, economic, and health environment was completely different from what we would have preferred. Nonetheless, the majority of our subsidiaries have done an excellent job of tackling all the challenges.

What goals have you set yourself for 2023?

Klinger-Lohr: We aim to further advance segmentation within our group and expect a new positioning in this regard. We will be focusing on holistic products and services, which will keep us busy over the next twelve months.

Schibli: In addition, we will be focusing on product expansions, company acquisitions, a unified appearance, and marketing and digitalization. Significant emphasis will also be placed on further development within the framework of ESG Environmental, Social, and Governance criteria. Not only do we want to expect it of others, we also want to apply it ourselves.

KLINGER Group

Greater than the sum of its parts

In the KLINGER ecosystem, customers benefit at every stage of the value chain. A global, far-reaching network makes this possible.

The value chain for gaskets and valves is long: from extraction of raw materials to processing and installation in the facilities, many work steps are required. KLINGER covers the majority of these processes and accompanies its customers throughout the entire journey. This is made possible by a globally positioned, comprehensive network of suppliers, distribution partners, and subsidiaries. The result is that everything, from the raw material to the finished product, can be offered from a single source. Welcome to the KLINGER ecosystem.

Cooperation without borders

Across national borders and often across continents, KLINGER employees work together to reliably supply customers with quality products and provide the best possible service and support. After all, the ecosystem does not end when the finished product is handed over, making it no surprise that more and more customers are now also taking advantage of the various services that KLINGER provides. These services include renting material or machines, support from qualified specialists during facility modifications and planned downtimes, and on-site consulting.

Global delivery

These kinds of consulting services often result in close cooperation, representing an expansion of the ecosystem to provide optimal service to customers in conjunction with specialized partners. A global network of distribution partners ensures that products and services are always available in countries without their own KLINGER branch. The partners include technical distributors as well as stampers and processors. “Even my great-grandfather worked with KLINGER,” says Michael Eifler from Theodor Winkel GmbH, which has been cooperating with KLINGER for decades. Walter Gauggel, Managing Director of Schippl Dichtungen GmbH (a member of the Späh Group), also reports an ongoing success story: “If one of our end customers has a problem, I can always call KLINGER without hesitation.”

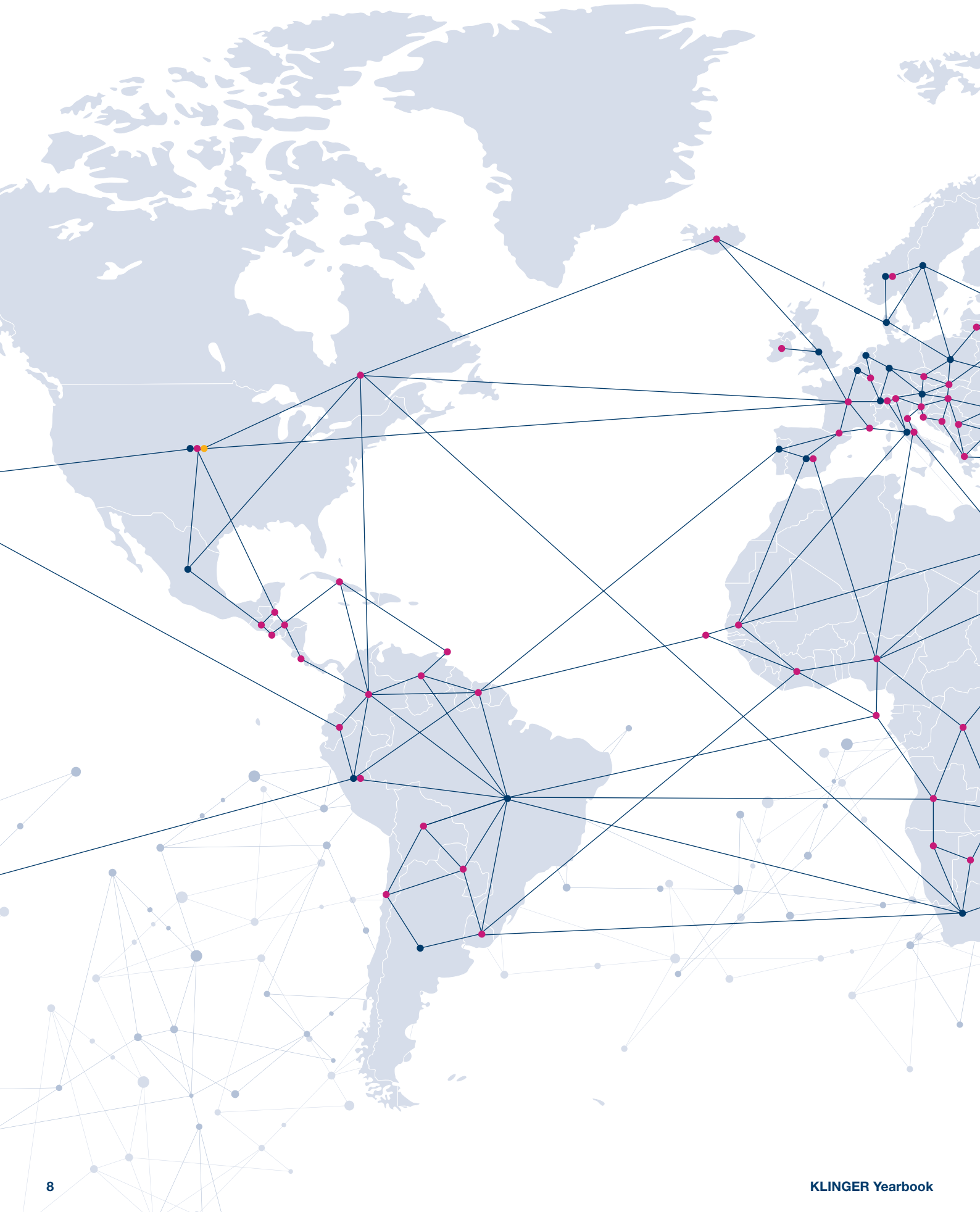
Bundling production knowledge

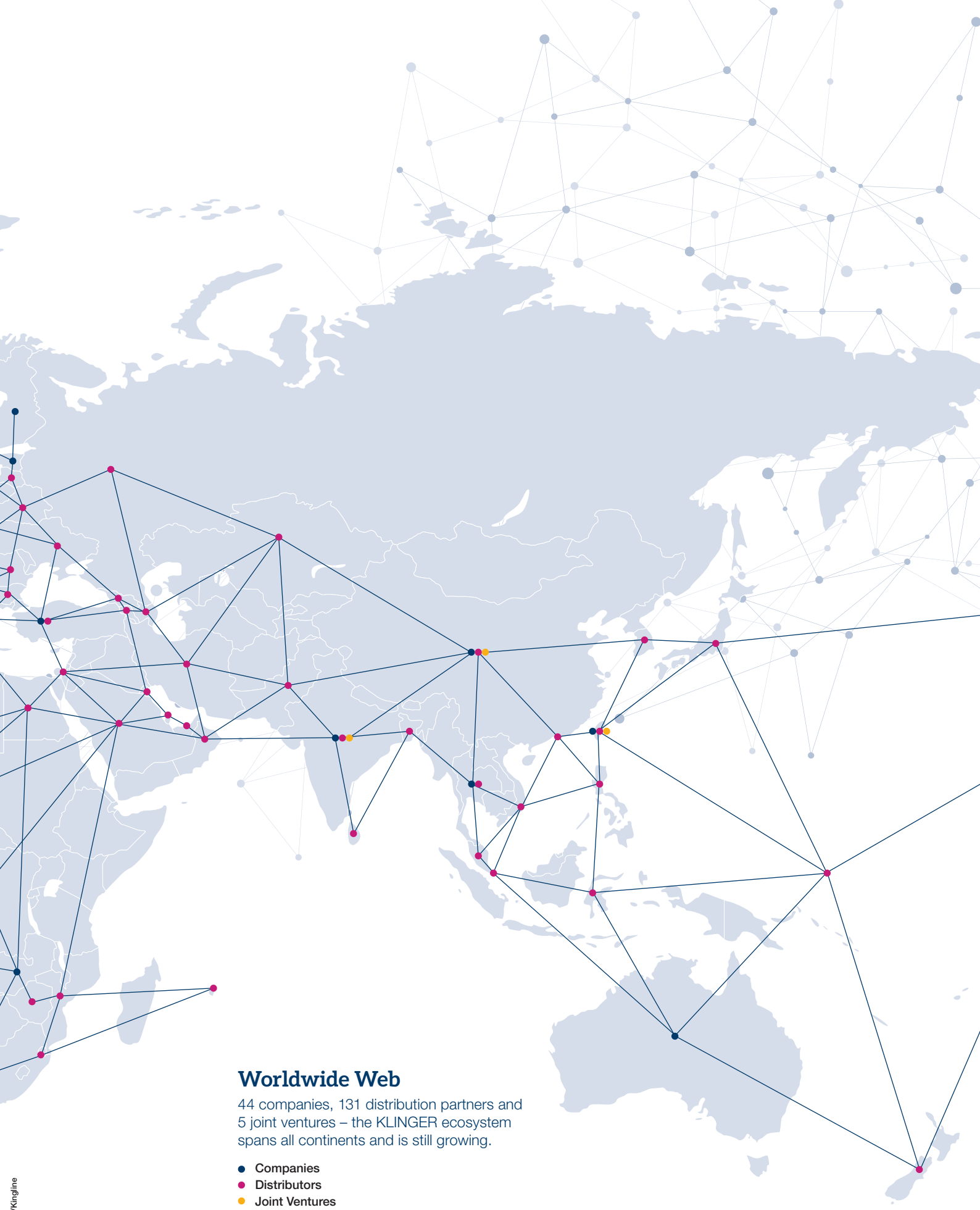
Additional joint venture partners, two of which are already in China, one in Taiwan, and one soon in the USA, expand the production capabilities in the KLINGER ecosystem – not only through united forces, but also through united thinking: The transfer of knowledge and learning from one another are at the forefront of the KLINGER network.

Ecosystem explained

An ecosystem in the economic context refers to partnerships between several companies that broaden their range of services through cooperation. In the process, borders between sectors, nations, and companies are dissolved.

Illustration: Shutterstock/Kingline





Worldwide Web

44 companies, 131 distribution partners and 5 joint ventures – the KLINGER ecosystem spans all continents and is still growing.

- Companies
- Distributors
- Joint Ventures

KLINGER trusted. worldwide.

Illustration: Shutterstock/Kingline





David Ruml (left) and Filip Ruml (right), managing partners of the Ruml Group

Prague/Czech Republic

Family matters

For more than 30 years, Ruml s.r.o. has been a trusted KLINGER supplier for industrial sealing, valves, and components for steam-condensate systems in the Czech Republic and Slovakia.

When brothers David and Filip Ruml reminisce about their early experiences with KLINGER, their memories stretch back much further than one might expect. Ruml s.r.o. was started by their father Vladimír in 1992 to serve as KLINGER's distributor for the Czech Republic and Slovakia. Even before that, their grandfather served as general director of a company that started working with KLINGER in 1968. "KLINGER was part of our childhood," David says. "There was a swimming pool at Gumpoldskirchen, which isn't there anymore. It was originally used as a safety point in case of fire, but also as a swimming pool in the summer. We would go in the pool while our father had a meeting with KLINGER Fluid Control."



David and Filip Ruml visiting a KLINGER stand in Czechoslovakia in the mid-1980s.

Political and personnel changes

Upon the dissolution of Czechoslovakia in 1993, Vladimír created Ruml s.r.o. to serve the newly formed Czech Republic and Slovakia. Vladimír steadily built a network of well-known industrial customers such as Chemopetrol Litvínov and District Heating Košice, focusing on valves, sealing, and components. David began his role at Ruml s.r.o. in 1998, not long after completing his degree in economics. He immediately applied himself to mastering all the institutional knowledge his father had gained over the years, particularly in gaskets and sealing. He spent much of his first ten years networking, going to customer sites and to trade shows to explain the KLINGER Expert program. Filip studied marketing and management, then went on to earn his MBA. He began his career at Komerční banka, but in 2008 decided to join David at Ruml s.r.o.

How to catch lightning in a bottle

The brothers set out to grow the business, focusing mainly on the heavy industry and energy sectors. They steadily added additional suppliers and employees, always putting earnings back into the business. By 2011, they were ready to add a second company, Ruml Tesnění, which focuses on industrial sealing and insulation. Investments in state-of-the-art CNC equipment allowed the location to quickly produce tailor-made gaskets at scale. Their third site, Ruml Industry, quickly followed in 2013. Located in Sulkov near Pilsen, this facility features 1,500 m² of production space for laser cutting, bending and welding, sheet metalwork, and other services. The team also established a RUML Service company directly at a Czech refinery location to begin their servicing and maintenance offerings. Industrial valves and gaskets, steam traps and condensate pumps, and steam products are among the parts offered, in addition to system design and energy audits. With 150 employees across five companies, the Ruml Group's broad market coverage and vast customized service offerings have attracted major customers such as ORLEN Unipetrol, Škoda, Continental Tires, and Slovnaft.

> "KLINGER was part of our childhood."
>
> **David Ruml, managing partner of the Ruml Group**



The management team (from left to right: Yohanna Bedos, Victor Bedos, Cédric Grandemenge, Jean-Romain Bedos) of Groupe Efire looks forward to a bright future.

Lyon/France

The elements of success

In 2003, KLINGER sales partner Groupe Efire brought together top industry experts to create a products and services powerhouse.

It would be no surprise for a company that dates back to 1872 to have a name that references the classical elements. However, it's pure coincidence that Groupe Efire branded themselves with a word reminiscent of the element of fire – especially considering that their specialties include both fire safety products and precision waterjet cutting. The moniker is actually an acronym derived from the names of the first member companies, including Eynard Robin, Fluides Industrie, Imperator, and Rank. Though 2023 will mark the 20-year anniversary of the partnership between KLINGER and Groupe Efire, it's only recently that the team has developed a Group website to present their combined range. The leaders of Efire value the reputations their member brands have earned over decades of industry expertise. "When they pick up the phone, they still use their brand name. We want to remain a house of brands and keep the 12 names," explains Victor Bedos, Director of Development and Innovation.

A strong legacy

With 150 years of history, the Efire companies are well versed in the constantly shifting landscape of family businesses. When Marcel Bedos purchased Eynard Robin in 1983, the company only had four employees and a small cutting shop with two presses. Marcel and his wife Danielle ran the administrative side of the business, while their son Patrick ran the commercial side. Patrick took over in 1996 upon his parents' retirement, by then helming a team of 15. Under Patrick's guardianship, the company expanded the headcount and customer base over time, adding Imperator to the portfolio in 2001. More acquisitions followed throughout the following years, as the group experienced exceptional growth. Hundreds of employees and forty years later, the third generation has now taken the helm, as Patrick's children Victor, Yohanna, and Jean-Romain assume leading roles alongside the fourth member of the board Cédric Grandemenge.

Planning for the future

Like every successful multigenerational company, Groupe Efire is making business decisions years ahead of time, not just via next-quarter projections. Their forecast for the next decade calls for a doubling in turnover by 2030, through a combination of organic growth and acquisitions. Increased exports will mean revamped software and business platforms to meet industry norms, requiring a significant investment in digitalization and standardization across the group's holdings. Online bulk sales are becoming more common, both as a result of the pandemic and as the energy industry modernizes, calling for a more robust web presence with a full catalog of their top KLINGER sealing solutions.

Bright outlook

Though the goals they have set for themselves are quite demanding, the Groupe Efire team is confident that they are on the right track. Their investment in the talented Efire staff and in KLINGER products will no doubt prove to be a winning combination. Cédric looks forward to a bright future, saying, "For us it's a lot of potential. We have the knowledge, we have the products, we have the certificates. We have a positive experience with our major customers. It's an industry with big prospects." With positive and proactive leadership guiding the way, Groupe Efire is no doubt ready to shine brightly for many years to come.

WHAT'S NEW AT KLINGER



KLINGER Argentina
joins forces with colleagues from Brazil.
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KLINGER Group's

strong return to trade fairs all over the world.
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KLINGER Finland

is welcoming Econosto Oy to the KLINGER family.
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KLINGER Fluid Control

is celebrating 100 years of the piston valve.
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KLINGER Kempchen's

the "Praxistage 2022" conference was widely praised.
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KLINGER Gebetsroither

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Female Engineering

Viktoria Heiermann (page 28) and Jane Abi Aad (page 30)

KLINGER India

was founded to be a strong regional presence.
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KLINGER Brazil

helps a pulp factory with new compression packings.
Page 23



Econosto Oy's warehouse is based in Kuopio, Finland.

Kuopio/Finland

A new addition to the family

Finnish valve distributor Econosto Oy joins KLINGER Finland.

Econosto Oy, a Finnish valve distributor founded in 1987, has joined the KLINGER Group after being acquired by KLINGER Finland Oy. The company's 4,000 m^2 facility, based in Kuopio, Finland, used to be privately owned by the Lehto family. Econosto Oy specializes in high-quality valves, gauges, and regulators, all customized in assembly-ready units. Their products are heavily used in the marine industry, supporting cruise ship onboard systems such as black and gray water, steam, condensate, hydraulics, and drinking water. Other customer markets include manufacturing, power plants, and wholesalers.

Good chemistry

When the possibility of acquisition became a reality, talks between Econosto Oy and KLINGER Finland reassured Econosto Oy's founder Martti Lehto that his business could grow without compromising the company's values. "I am delighted, having found a perfect partner for Econosto Oy's future. Right from the beginning, we could already feel that there was good chemistry between our people. I am looking forward to a shared and promising future," said Martti. KLINGER Finland is currently working on the smooth integration of Econosto Oy into the KLINGER Group.



Daniel Schibli (CEO of the KLINGER Group, left) and Martti Lehto (former shareholder and COO of Econosto Oy) are looking forward to a promising future for Econosto Oy.



Econosto Oy's products can be assembled into product entities suited to the needs of its customers in Finland.

> "I am delighted, having found a perfect partner for Econosto Oy's future."
>
> **Martti Lehto, former shareholder and COO of Econosto Oy**

Esa Virtanen, Managing Director of KLINGER Finland and now also Econosto Oy, will further develop the business together with Tanja Lehto (Business Development), Toni Ålander (Head of Sales), and the rest of the dedicated Econosto Oy team. Founders Martti and Ulla Lehto and their daughter Tanja Lehto will remain with the company and provide additional guidance to the development team during the transition period. The current staff and facilities will remain unchanged.

Ensuring satisfaction

Econosto Oy has always been focused on delivering high customer satisfaction. Today, the company has over 100 customers in multiple industries. Over half of their deliveries are made-to-order prefabrications, designed and assembled according to the customer's individual needs. On-site services, such as assembly, design, and safety adjustment, allow Econosto Oy to ensure satisfaction beyond product delivery. Storage services and variable freight options provide support for logistical and supply chain challenges, an important benefit in the post-pandemic market.

Their valve product lines come in a wide variety of options, featuring temperature ranges from –40°C to 1,000°C (–40°F to 1,832°F) and sizes from DN8 to DN1600. Ball valves, butterfly valves, gate valves, check valves, and globe valves are a few of Econosto Oy's options to carry both potable and caustic media. Other products, like strainers and traps, are mainly used with steam and water. In-house safety and optimization adjustments for their products are a key selling point of Econosto Oy. Customers rely on their expertise to examine and install products efficiently and inspection-ready.

Team members from both Econosto Oy and KLINGER Finland are eager to ensure that the customer experience remains seamless throughout the acquisition process. The winning combination of a family-run personalized business with the resources of a global market leader will no doubt prove a boon to the entire Econosto Oy and KLINGER Finland customer base.



Sandeep Basrur is spearheading KLINGER's efforts to grow its business in India.

Bengaluru/India

KLINGER is growing in India

KLINGER is strengthening its position in India with a new subsidiary to shorten order lead times and improve customer support.

With robust demand for gaskets across multiple industries, customers in India have long been familiar with the KLINGER family of products. The country's emergence as a global manufacturing hub has challenged suppliers to keep up with high product demand, and post-pandemic supply chain issues have strained resources even further than before. Although already holding a minority stake in a manufacturing joint venture in India via Uni Klinger Limited (UKL), KLINGER decided that a subsidiary located just outside Bengaluru would drastically shorten order lead times, additionally providing a service presence for troubleshooting and customer support.

Sandeep Basrur, Managing Director of KLINGER India, is optimistic that the new location will be a boon to India's manufacturing needs. He says, "It's a good time to develop this market by stocking products in India, and then being able to supply them at short notice. Lead times for shipping from plants in Europe are quite long." Flexible shared warehousing will allow the team to keep up with local product demand, while still adjusting on the fly to changing market needs.

The world's largest sector for automotive manufacturing

India is home to one of the largest motorcycle and automobile manufacturing sectors in the world. This industry relies heavily on rubber-coated steel that is used to produce cylinder head gaskets and noise absorbing shims for disc brake pads. KLINGER's product offering in this sector is Polystrat. Because only a few facilities are set up for the time- and cost-intensive production process that Polystrat requires, availability in the past was often at the mercy of the global shipping crisis. Local stocking will allow KLINGER to



The KLINGERSIL product family is an essential part of plant safety and emission reduction.

Illustration: Shutterstock/invisibleStudio



A subsidiary of KLINGER located just outside Bengaluru allows the team to drastically shorten order lead times and deliver to seven major manufacturing clusters.

make this key product readily available to the Indian market, with little to no lead time.

While Uni Klinger will continue to market its Indian-made products under their own brand such as UniSIL, KLINGER India will be servicing large gasket manufacturers and OEMs with EU-made quality products without intermediates. Another popular product in India is KLINGERSIL, a fiber-reinforced gasket material with high sealability and strong chemical resistance. This sheeting is an essential component for multiple industrial and manufacturing uses, including refineries, oil and gas, and automotive sectors. Because these industries require consistent operation, any source material shortages can lead to costly downtime that wreaks havoc on budgets and schedules. Local stocking through KLINGER India will provide the reliability needed to keep them running smoothly.

Looking to the future of service

While the initial stages of this new venture will be focused on the development of a thorough and consistent product library for the Indian market, Sandeep and his team are already planning to expand service offerings in the not-so-distant future. Technical support and services will be provided as standard, at some point expanding to on-site expert guidance for plants and refineries.

The process of creating an entirely new subsidiary is challenging, but Sandeep and his team are up to the task. His enthusiasm comes through when he discusses the project, saying, “We’re setting things up from scratch, which is the exciting part of it. We’ve got the right elements in place to create a very interesting business.”

> “It’s a good time to develop this market by stocking products in India, and then being able to supply them at short notice. Due to the distance, lead times for shipping from plants in Europe can be quite long.”
>
> **Sandeep Basrur, Managing Director, KLINGER India**





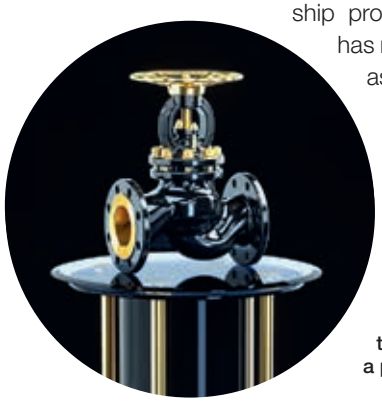
The development of the piston valve over the course of a century

Gumpoldskirchen/Austria

An idea for the centuries

Richard Klinger's piston valve invention laid the foundation for the valve industry and has made a significant contribution to the company's success for 100 years.

We usually make a toast to good health and a long life when someone reaches the 100-year mark. In the case of the KLINGER KVN piston valve, the temptation is to toast to another 100 years of tightness: The flagship product from Gumpoldskirchen has now proven itself for a century as a reliable solution wherever the most stringent tightness requirements apply.



The technical capability of the KVN piston valve deserves a place on a pedestal.

Tradition times a million

Early on in the history of the piston valve, its main application lay in steam rail traffic and the marine industries. Today, the areas of application of the KLINGER KVN piston valve have expanded enormously: Be it in areas where fire resistance counts, for oxygen approvals, or for keeping the air clean – the traditional product is in use in the millions and comes in different connection types (flanges, sockets, internally fitted, and welded on) and designs worldwide.

Sophisticated technology

The KVN piston valve scores highly with minimal maintenance and significant cost savings. Sophisticated technology makes

1950

2000

1965



2004



2011



1959



2010



1986



2022





An exhibition in 1923 praises the high quality of the KLINGER piston valve.

this possible: The sealing element is formed by a stainless steel piston, which is enclosed by two elastic valve rings. The upper valve ring ensures tightness to the atmosphere, while the lower ring provides reliable sealing in the bore. The large sealing surface of the valve rings thus results in optimal sealing. The pistons of the KVN VIII series, DN65 to 200, are produced with a pressure-balanced design in order to enable smooth operation even at high differential pressures. Upon closing of the valve, the piston pushes any impurities that may be in the medium from the inside of the lower valve ring. As a consequence, even contaminated media can be reliably sealed off, preventing damage to the sealing surface.

Proven principle of operation

Over time, sealing materials have been adapted to relevant industry standards. However, the tried-and-tested operating principle of the sealing system is still in use today. With the KVN piston valve, Richard Klinger succeeded in inventing the classic industrial valve and laying the foundation for its pioneering role in piston valve technology. So we hope this celebrated product will remain an indispensable part of industrial plants for many years to come!

Interview

3 questions for...





The piston valve was invented by Richard Klinger in 1922.

... Christoph Klinger-Lohr, CEO of the KLINGER Group

1. In 2022, the KVN piston valve turned 100. How did the idea for the valve come about?

It all started with the patent for a "miracle door". On November 8, 1888, my great-great-grandfather Richard Klinger, together with engineer Victor Würth from Pfaffstätten, applied for a patent for a revolutionary invention: "A single-leaf door that can be opened either from right to left or from left to right, however not from both sides at the same time." This patent was never officially appraised, and yet the reliable opening and closing of valves still forms the basis of the global success of the KLINGER brand to this day.

2. How did KLINGER manage to stand out from the competition?

The piston valve is exceptionally durable and universally applicable. As a result, KLINGER Fluid Control has a wide customer base. We also have a global outlook and make deliveries all over the world. High quality and global marketing by KLINGER are what have made the piston valve so successful and have always clearly set it apart from the competition.

3. Where does the great success of this product lie?

The piston valve shaped KLINGER as a manufacturer of valves early on. It laid the foundation for KLINGER's success as a valve manufacturer since it made broader branding possible and helped strengthen the KLINGER brand enormously. One of the primary quality features is also the continuous production at the main site in Gumpoldskirchen – which means it has always been at home here. Design adjustments and innovations were also made here. I see it as a great achievement to always produce at the same location. It's a great advocate for high quality from Austria! Later, KLINGER Brazil also received the license to manufacture our piston valve as a second production site.



Peter Dijkgraaf, Managing Director of Dijkgraaf-Support BV, and Jacco op ‘t Hof, Managing Director of the PROGRESSO GROUP, discussed “flange integrity at risk through the mismatch of theory and practice”.



In his presentation, Meik Brinkmann, Managing Director of OAT Oberberg Armaturen Technik GmbH, talked about the “protection of internal pressure using safety valves”.

Oberhausen/Germany

Sealing industry conference

The KLINGER Kempchen “Praxistage 2022” discussed a wide range of topics tailored to the needs of plant operators and received high praise from the industry.

When experts provide information about the technical basics of plant components and sealing systems, that is already a good reason to pay a visit to KLINGER Kempchen at their Oberhausen location. More than 150 attendees closely followed the discussions and presentations at the “Praxistage 2022” on the practical experiences of system operators in the process industry. The conference “has established itself as a leading event in the field of industrial plant and sealing technology over the past few years,” says Klaus Schonebeck, former Managing Director of KLINGER Kempchen.

For the industry, by the industry

As part of a plant tour, participants gained insight into the most modern manufacturing technologies and processes for producing high-quality, static sealing systems in Oberhausen. “The high number of participants and the positive feedback confirms that we will be planning another conference in the coming years,” adds Karsten Frontzek, Sales Manager at KLINGER Kempchen. For Bärbel Derix, Team Leader Marketing & Sales at KLINGER Kempchen, the “Praxistage 2022” were a success: “The discussions provided us with valuable insights into how we can further improve our products and services as a company to meet our own and our customers’ requirements in terms of environmental protection, plant availability, and safety.”

As one participant sums it up in a nutshell: “A very successful and informative event, from the warm welcome and the selection of lecture topics to the speakers’ technical expertise.”



Klaus Schonebeck, former Managing Director of KLINGER Kempchen, took the opportunity to personally guide customers through the factory.

Key topics of “Praxistage 2022”:

- Areas of application and leakage testing of static seals for the medium hydrogen
- Leak-free joints and explosion protection
- Reliability engineering during shutdowns
- Protection of the internal pressure using safety valves
- Digital flange assembly
- Comprehensive consideration of the standards for pipelines and flange connections “ASME vs. DIN EN”
- Joint Integrity Management (JIM): a holistic approach to screw joints to avoid unplanned downtime

ACHEMA 2022 is considered the world's leading trade fair for the process industry. KLINGER Dichtungstechnik and KLINGER Germany joined together as one of more than 2,200 exhibitors at the Frankfurt exhibition center and recorded a successful start to the trade fair.



KLINGER South Africa's first participation at the Electra Mining Expo in Johannesburg was a success.



At Aqua Pro, the Swiss B2B trade fair in Bulle focusing on the global water cycle, KLINGER Gysi presented solutions for district heating.





The Offshore Europe Exhibition in Aberdeen, Scotland, reflects developments in power generation in the North Sea. KLINGER United Kingdom presented their gasket solutions for a more sustainable future.

KLINGER Group

Strong return to trade fairs

For more than three years, the pandemic had the trade fair industry firmly in its grip. While smaller, regional trade fairs could take place under strict government guidance, gates to international trade fairs remained largely closed. In 2022, however, the tide turned and KLINGER presented innovative solutions at numerous in-person trade fairs.



At Valve World Expo 2022 in Düsseldorf, three KLINGER companies (KLINGER Kempchen, KLINGER Schöneberg, KLINGER Italy) showcased their solutions for tackling the challenges of the hydrogen medium.

Further trade fair appearances in 2022:

- Pump & Valves Expo in Antwerp, Belgium
- Roseland Oil & Gas Show in Texas, USA
- PNAA, Sampe and D&M West in Texas, USA
- Vaasa Gas Exchange in Vaasa, Finland
- MCE in Milan, Italy
- PulPaper in Helsinki, Finland
- Fernwärmetage in Villach, Austria
- Futurebuild Exhibition in London, United Kingdom
- Fachtage Fernwärme in Kassel, Germany
- Frauenthal Expo in Vienna, Austria
- and many more

Belo Oriente/Brazil

Turning over a new leaf

Brazilian pulp company converts to using KLINGER GFO® compression packings.



Inside Cenibra's Belo Oriente pulp facility, digesters are subject to extreme working conditions.

When Cenibra shut down their Belo Oriente facility in the summer of 2022 for regularly scheduled maintenance, they were ready for a change. The plant's capacity of 1,200,000 tons per year cemented their status as a global leader in pulp production, but frequent equipment servicing was causing costly and time-intensive delays. The digesters and feeders used to process pulp were subject to the most severe conditions of chemical products, pressure, and temperature: upwards of 160°C (320°F) and 12 KGF (kilogram-force).

In need of a robust compression packing

The team saw the shutdown as a window of opportunity, and wisely used the time offline to test out better packing alternatives. Already pleased with the KLINGERSIL products they currently had in use at several locations, Cenibra called on KLINGER Brazil to provide a more robust alternative packing product, and in short order they had a solution: GFO® compression packing. This packing is made from expanded PTFE and encapsulated graphite, which offers excellent lubrication and thermal conductivity to dissipate heat and withstand friction. This prevents damage to the fibers and provides lubrication of the compression packing itself, for better performance and significantly increased product life span.

A history of success leads to more innovation

Because Cenibra had a prior working relationship with KLINGER and had experienced their product quality first hand, they were open to further experimentation. Vinicius Tomiati, Product Specialist Seals for KLINGER Brazil, explains, "After starting the production of GFO® compression packings at KLINGER Brazil, we began to develop technical work with the customer for the application of the GORE® products." This research and real-time feedback allowed the team to create an even more effective product, which would stand up to the tough operating conditions the plant equipment experienced during daily use.

To date, the Cenibra plant has been humming along with the new KLINGER GFO® compression packing in place. Vinicius reports, "The GFO® compression packing has been performing satisfactorily. The goal is to last 15 months in operation." The team is confident that the new material will offer an increased life span that will allow the plant to adjust its maintenance and repair schedule to a more cost-efficient and predictable time frame.



KLINGER Brazil GFO® compression packing is a sealing reference in terms of performance, durability, scope of application, and economy. In the image it is being applied to high and low pressure feeders.

> "The GFO® compression packing has been performing satisfactorily. The goal is to last 15 months in operation."
>
> **Vinicius Tomiati, Product Specialist Seals at KLINGER Brazil**





Cristian González, Sales Manager at KLINGER Argentina



Luciano Bussi, Sales Manager at KLINGER Brazil

Salta/Argentina

The power of teamwork

High reliability and a high degree of tightness were required in a delicate project in South America. KLINGER Brazil and KLINGER Argentina teamed up to deliver piston valves for CO_2 purification and liquefaction.

KLINGER Argentina has a long history as a leader in fluid control for the South American market. In the early 1970s, KLINGER began in-house factory production of rubber-bound compressed sheets. This early success led to expansion in the following decades, and the product offerings increased to also include materials for gaskets, level indicators, and piston valves. The key to customer satisfaction in this region has been their domestic production, which ensures shorter lead times and closer contact with end users.



Piston valves ensure reliable fluid control in various setups.

Customized products for every need

When Lito Gonella, a long-term customer, was in need of materials for a CO_2 purification and liquefaction plant project in Salta, their many years of industry experience led them to contact KLINGER Argentina for assistance with piston valves to be installed in polyurethane foam-insulated pipes. Sales Manager Cristian González swung into action, discussing the project needs with the team's subject matter experts via email and phone conferences. As the conversation progressed, the project's need for high reliability and a high degree of tightness within the valves suggested that a tailor-made solution was the best path forward. "They required some special parts inside the valve, and I quickly realized we would have to customize it," says Cristian. The valves are equipped with PTFE seats and packings. Screws, nuts, lantern, and washers come in a stainless steel version.

Close collaboration to meet the client's needs

With a preliminary plan in place, Cristian reached out to Luciano Bussi, a Sales Manager at KLINGER Brazil, as well as a long-time friend and colleague. Their past collaborations within the KLINGER Group



> “Cristian and I have very strong communication, and can respond to customer needs in no time. Cooperation not only between our companies but also within the KLINGER Group is key.”
>
> **Luciano Bussi, Sales Manager at KLINGER Brazil**

include a variety of gasket and valve projects over the years, ranging from standard to custom solutions. “We are practically brothers!” Luciano jokes. As two of the main leaders of KLINGER’s South American presence, Cristian and Luciano are used to relying on each other for brainstorming and troubleshooting in order to meet urgent client needs with regional solutions. Post-pandemic their collaborations have become even more frequent and valuable, as local customers struggle with long-distance suppliers falling short of the required inventory stock and projected delivery dates.

Surprisingly short turnaround time

Because Cristian and Luciano have so much history, they have streamlined their collaborative process to achieve peak efficiency. Turnaround time for a quotation or specification is no longer than ten days. Delivery time for standard piston valves is thirty days; or, for the kind of customized valves created for this project, around sixty days. As Luciano points out, “Cristian and I have very strong communication, and can respond to customer needs in no time. Cooperation not only between our companies but also within the KLINGER Group is key.” Cristian agrees and adds that “the customer is confident that they’ll always receive a quick response from us.”

Special requirements for a CO_2 purification and liquefaction plant

For the custom piston valves needed in this project, the entire planning process was handled virtually. Cristian and Luciano were working from two separate countries, several other KLINGER experts were weighing in from their respective locations, and the customer headquarters and job site were located in two different Argentinian provinces. The short time frame and multiple layers of input called for frequent check-ins, all handled via conference call to keep everyone on the same page. Once the valves had been selected, additional research was conducted to ensure that the body material could withstand the required pressure and temperature (liquid/gaseous carbon dioxide, at –30°C (–22°F) and 27 barg maximum pressure) dictated by the customer. After several consultations with factory experts to review the mechanical and chemical demands of the plant, the team was able to confirm that the customized valves would suit the project requirements. All valves Ø2” and Ø3” are for the piping insulated with polyurethane foam and will be installed at the outlet and inlet of the liquefied CO_2 storage tanks.

Custom fluid control solutions

At the end of the project, the customer had gone from ideation to working status in less than six months. Luciano and Cristian were able to deliver a bespoke valve that not only met exacting requirements, but was also delivered within the promised time frame. Their years of flawless teamwork have turned the somewhat complicated process of developing custom fluid control solutions into a smooth and steady operation. Luciano is interested to see what the future brings: “We have a lot of business in standard products, there is no issue about that. But even when they have a special case, we are always open to discussion and meeting their needs.” Together, they look forward to the challenge.



© Erdöl-Lagergesellschaft m.b.H.

Strategic reserves of petroleum products are held at the Erdöl Lagergesellschaft tank farm to ensure a 90-day supply for Austria.

Linz/Austria

Valves for the emergency reserve

In case of an emergency, the Republic of Austria stores petroleum products in the storage tanks of the ELG Group. When such an event occurs, KLINGER's gaskets and valves ensure that the emergency supply flows smoothly.

"We use KLINGER valves that have been reliably in service for 40 years."

Otmar Hochreiter, site manager at the Linz depot

This is documented in the Petroleum Stockpiling Act 2012: Austria obligates itself to maintain oil reserves in case of an import supply collapse. The country is expected to sustain itself for up to 90 days with these compulsory emergency reserves. The "central stockpiling office", Erdöl-Lagergesellschaft m.b.H. (ELG), operates tank and handling facilities in Linz, Lannach, and Vienna-Lobau, and is responsible for ensuring the reserves are filled. As the backbone of Austria's energy supply, ELG has been working with KLINGER Gebetsroither for years.


© Erdöl-Lagergesellschaft m.b.H.

Both filling and emptying the tank farm are energy-intensive processes.

High safety requirements

"We use KLINGER valves that have been reliably in service for 40 years," says Otmar Hochreiter, site manager at the Linz depot. Approximately 200 ball valves bear the "KLINGER" label, and at the customer's request, the gaskets used are also produced by KLINGER Gebetsroither. The high safety requirements that come with operating a storage tank of this size also affect material requirements: To guarantee the maximum tightness, KHI ball valves in a double-block-and-bleed design with a drain ball valve are used. Valves can thus be tested for leaks under pressure while still installed. They meet the fire safety requirements according to EN ISO 10497 (testing of valves – fire type-testing requirements) and are equipped with a pneumatic actuator that is placed in a safe position by a spring drive during power outages. "We are subject to the strictest safety and environmental regulations, and the technology prevents any form of oil leakage," says Otmar, who knows the condition of each individual valve at all times, thanks to the fully digitalized system.



Markus Fröller and Otmar Hochreiter inspect a valve at the ELG tank farm in Linz.

> “ELG could also be called an energy storage company. The stockpiling and storage of pellets as an alternative source of energy can certainly be seen as realistic. There are also many other approaches, but the end of oil is still a long way off.”
>
> **Otmar Hochreiter, site manager at the Linz depot**

Markus Fröller, who has been with KLINGER Gebetsroither for 30 years and spent the last 15 of those as a technical consultant in the field, knows everything there is to know about the valves. For him, the cooperation with ELG is “a success story for both companies.” The partnership has also survived the use of valves from other manufacturers that were not satisfactory for ELG: “It was anything but pleasant when a valve started leaking within a year and we discovered a drip loss under a ball valve. Such things should not happen with a new valve, so we went back to KLINGER products because they just work,” says Otmar. As with many things, this experience also had a silver lining: The partnership with KLINGER was renewed and intensified, and leakage became a thing of the past.

Post-fossil future

ELG is also thinking about the future and pursuing alternative ways to save energy. Both oil storage and retrieval are energy-intensive processes, so pumps with more economical motors are being considered. “We save energy even in the smallest areas, starting with the lighting and heating of our buildings,” says Otmar. When asked about the post-fossil future, he explains: “ELG could also be called an energy storage company. The stockpiling and storage of pellets as an alternative source of energy can certainly be seen as realistic. There are also many other approaches, but the end of oil is still a long way off.”

Energy reserves worldwide

The member states of the IEA (International Energy Agency) are required to maintain an oil reserve that guarantees a secure supply for at least 90 days. The capacities of the individual countries can vary greatly. While in 2022 the US reserves lasted for up to 2,437 days, the IEA countries of the Asia-Pacific region only provided for an average of 182 days. In Europe, the average supply security is around 87 days, with Austria having a mandatory emergency reserve to sustain itself for up to 90 days. It is worth noting that these reserves are intended for use in the event of a crisis or an interruption to the oil supply rather than for regular consumption.



Viktoria Heiermann likes to get a personal impression of the condition of a system – and does not mind putting on overalls to do so.

Female Engineering

The lady in blue

As a woman in technology, Viktoria Heiermann impresses with her specialist knowledge and practical experience in this male-dominated industry. And she still wears nail varnish.

"You'd better break a few fingernails before we continue." Viktoria Heiermann does not take comments like this seriously. "All I can do is laugh it off. My reply is that you don't have to worry about me, I've been to construction sites before," says the 33-year-old industrial engineer who has been working at KLINGER Kempchen for two years. Viktoria only had to deal with the skepticism of her male colleagues at the very beginning, and she was quickly able to win them over with her expertise and experience – without sustaining any bruises or broken fingernails – in order to be accepted as a woman in technology: "I'll continue to go to the plants wearing nail varnish."

For Viktoria, authenticity is the recipe for success that has enabled her to assert herself in a male-dominated industry for several years now. "When the assemblers on site see that you know what you're talking about because you've been there yourself, then they appreciate that," says the graduate of the Duisburg-Essen University of Applied Sciences where she studied industrial engineering with a focus on mechanical engineering. In the course of her theoretically oriented studies, she specifically chose internships where she was "not too good for anything": sweeping warehouse floors, stuck with doing inventory – "they weren't always the most exciting tasks, but

you learn to stick it out, to develop stamina. Even today I have great respect for the workers operating the machines all day."

Guinness and boxing

As an employee in technical sales and application consulting at KLINGER Kempchen, it is important to her to be present regularly during shutdowns and plant closures, a place where she appreciates friendly interaction on a first-name basis. Their most important customers include the Shell refinery, BASF, and BAYER. Viktoria covers an area in the Rhineland that she, as a resident of Bergisch Gladbach, knows like the back of her hand. As a fan of Guinness and craft beers, she can recommend the best Irish pub in Cologne, too. Her hobbies include motorcycling, going for walks, dancing salsa, coaching, and boxing: "It perfectly matches the cliché of a woman in technology," says Viktoria.

Construction site consultant

Helmet, safety goggles, safety shoes, and hearing protection are standard equipment when a customer encounters problems on site. "You learn a lot when you meet the customers. It's very different to just looking at the drawings. The local conditions can often deviate from the plan." A recommendation that she makes for a particular seal can only work properly if it is also installed correctly. "If you keep an eye on the assemblers on site and train them in how to handle the material correctly, you've gained a lot," says Viktoria.

> "More diversity is needed on the teams, and I think it's cool that when I am in contact with current customers I get to deal with women on the executive floors."
>
> **Viktoria Heiermann, Technical Sales**



Stay true to yourself

According to Heiermann, you need a healthy dose of self-confidence in order to be taken seriously by the fitters. "We work in an industry where self-doubt can easily creep in, so I am happy and grateful for feedback. Even if I sometimes get a rap across the knuckles, I'm allowed to make mistakes and try things out – it's fun to work in a setting where I can move freely." As long as you stay true to yourself, you can stay on the ball even as a woman, finds Viktoria. As the only woman in field service at KLINGER Kempchen she has a wish: "More diversity is needed on the teams, and I think it's cool that when I am in contact with current customers I get to deal with women on the executive floors."



Her job requires her to be constantly on the move.



Jane Abi Aad joined Eynard Robin as the company's first research and development engineer.

Female Engineering

Forming bonds

With a PhD in physical chemistry and professional experience in neurodevelopment, Jane Abi Aad has mastered the combination of hard sciences and human nature.

As a Research and Development (R&D) Manager for Groupe Efire – KLINGER's long-term sales partner for France and French-speaking Africa (see page 11) – Jane Abi Aad clearly understands the implications of human factors in the R&D process. When asked for her thoughts on the gender gap in STEM professions, she immediately points to an example that color codes the earliest possible phase of human development: "Have you seen gender reveal videos? Pink is for girls; blue is for boys. Start with parents, not with teachers, if you want to eliminate the difference." Her astute observation isn't based on guesswork. While earning her Master's degree in physical chemistry, Jane juggled her schoolwork alongside a job as a special education teacher in a pilot program for students with cognitive and neurodevelopmental difficulties. The juxtaposition of the number of women she saw in higher education, when compared to that of her young protégés, was striking. "Many of the ones getting high grades were women. Yet the more you move up, the more you find almost all men. All the women – where are they?"

Blazing a new trail

After earning a scholarship to complete her PhD in France, Jane left her native Lebanon to continue her academic journey. Upon graduating, she joined Eynard Robin as the company's first research and development engineer. Creating a department from scratch was a challenge, but also an opportunity. As the only woman on the technical side of the company, Jane was determined to prove her mettle and her knowledge. "When you're a woman and you're young, no one takes you seriously until you prove your skills. But when they see that you're

S.T.E.M.

- **S**cience
- **T**echnology
- **E**ngineering
- **M**athematics

Illustration: Shutterstock/ID_studio

GROUPE efire

The company dates back to 1872.

not surrendering, you keep on fighting, you keep on moving in your project? Of course, they change their mind." Her hard work paid off, with a promotion to manager in less than two and a half years.

Talent for leadership

With the chance to run her own department, Jane had a clear vision for how she wanted to proceed. Her team was going to emulate the best parts of academia, while still maintaining the private sector agility necessary to encourage cutting-edge research and development. Clearly, her plan is working: again, she was just short of two and a half years into her first management role when she earned another promotion, this time to Manager of R&D as well as the Engineering Office of the entire Groupe Efire. When asked about her obvious talent for leadership, she humbly points toward collaboration and the combined talents of her colleagues. "It's a very different style of management to what I got when I started working. It's more similar to what I got when I was doing my PhD. I'm more into listening and more into discussion, I'm more into taking the opinions of everyone. It's not a way of management where I'm the boss. It's not like in the industry, where we see that everywhere."

> "When you're a woman and you're young, no one takes you seriously until you prove your skills. But when they see that you're not surrendering, you keep on fighting, you keep on moving in your project? Of course, they change their mind."

Jane Abi Aad, Manager R&D and Engineering Office at Groupe Efire

A recipe for success

With an intellectually hungry team at her side, Jane knows that a passion for the work is the key to keeping them inspired. Frequent conversations about career goals and personal development keep her tuned in to each person's professional path. As she explains, "We're seeing the results. I'm interested in what every engineer or technician would like to do, would like to become. Caring about their needs motivates people." When one new team member was feeling uncertain about a stretch project, she specifically assigned him to a customer whose work required a lot of interaction and feedback, so she would have the opportunity to work beside him and provide course corrections as needed. As his confidence grew, she pulled back, until he was handling the bulk of the project on his own.

> "We're seeing the results. I'm interested in what every engineer or technician would like to do, would like to become. Caring about their needs motivates people."

Jane Abi Aad, Manager R&D and Engineering Office at Groupe Efire



Despite her successes, the challenge of being a woman in engineering is never far from her mind. Her experiences as both student and teacher, as both employee and manager, have given her powerful examples of what to do – and of what not to do. Still, as much as she hopes to encourage and mentor other women in her field, she is keenly aware that motivating women to pursue STEM is a change that must start much earlier in life. As she says, "It's not that women are not motivated. It starts from an early age; we have to play with girls in the same way that we play with boys. We have to give toys to girls that we would give to boys. And so on."

SUSTAINABILITY COME TRUE




KLINGER Denmark
pleads for upcycling.
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KLINGER Gebetsroither
contributes to a Tyrolean hydrogen pioneer's success.
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KLINGER UK
provides Integrity Services to customers.
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KLINGER Gebetsroither's
experts support the conversion from power to heat.
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KLINGER Schöneberg
receives praise for environmental action.
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KLINGER Spain
shares unique expertise through energy audits.
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KLINGER Brazil
supports the first heliothermal plant in the country.
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Graben-Neudorf/Germany

Go for Gold

Its EcoVadis Gold rating puts KLINGER Schöneberg among the top 1% of manufacturers of general-purpose machinery. The sustainability award recognizes long-term commitment to environmental and social responsibility.

Following its 2022 audit of KLINGER Schöneberg, sustainability ratings provider EcoVadis has upgraded the German ball valve manufacturer to Gold. Having further boosted its sustainability credentials, it achieved an average of 70 out of 100 possible points, placing it overall among the top five percent of companies assessed by EcoVadis. Through consistent enhancements in all categories, KLINGER Schöneberg has transformed its 2020 Silver status to Gold in 2022, propelling it above the industry average in its sector.

"We are proud that KLINGER Schöneberg has now been rated Gold by EcoVadis. This is clear recognition of our commitment to sustainability throughout our value chain and gives our customers and suppliers the assurance that we are continuously striving to be an ever more environmentally responsible and trusted global partner in all aspects," says Manfred Goßmann, Managing Director of KLINGER Schöneberg.

Extensive expertise

Since 2017, KLINGER Schöneberg has been regularly audited and certified by EcoVadis based on documented evidence. The EcoVadis sustainability assessment is a globally recognized, independent, fee-based service that analyzes the business practices and sustainability impacts of companies and supply chains. As the world's most trusted provider of business sustainability ratings, EcoVadis has so far assessed more than 90,000 companies in 200 industry sectors in more than 160 countries.

Circular economy

A key to the improved result was the company's sustainable procurement practice. In this assessment category, the sustainability survey of all A and B suppliers, as well as their Supplier Codes of Conduct, confirmed in writing, boosted the score by 20 points to 70. In the environment category, KLINGER Schöneberg has implemented a sustainable circular economy process. Through its cooperation with Rudolf Schuy GmbH & Co. KG – a trusted expert in the disposal of common metals and substances –

The EcoVadis rating is based on 21 sustainability criteria in four categories:

- Environment
- Sustainable Procurement
- Ethics
- Labor & Human Rights



KLINGER Schöneberg can offer its customers in the chemical industry a closed-loop disposal system in which the cooperating partner collects all industrial valves, sorts them according to material type, and forwards them to the appropriate recycling or material recovery service. In addition to its environmental value, this process makes a significant contribution to supplying the economy with raw materials.

Responsible use of resources

By introducing a circular economy and reducing consumption of resources, the valve manufacturer upped its score in this category by ten points to 70. Thanks to the publication of its Corporate Social Responsibility (CSR) report and the launch of a whistleblowing system, its score in the categories Ethics and Labor & Human Rights also increased by ten points to 70 in each case.

Positive development trend

Stressing the company's intention of continuing and expanding its development effort, Business Development Manager Marcel Goßmann says: "Despite our excellent rating, which places KLINGER Schöneberg among the top one percent in the industry, we will continue to leverage the assessment results to implement potential improvements." Many globally active companies, including KLINGER Schöneberg's major customers (such as BASF, DOW, Covestro, among others), also participate in the EcoVadis system. "They keep an eye on our scorecard to stay up to date on our sustainability development."

"KLINGER Schöneberg will continue to make a significant contribution to sustainable corporate development," says Manfred. "We are convinced that the future belongs to sustainably manufactured products."



The process also provides assessed companies with a valuable comparison with others in their industry, Marcel Goßmann, Business Development Manager at KLINGER Schöneberg, is convinced.

> "Despite our excellent rating, which places KLINGER Schöneberg among the top one percent in the industry, we will continue to leverage the assessment results to implement potential improvements."
>
> **Marcel Goßmann,**
> **Business Development Manager**
> **at KLINGER Schöneberg**



The new hydrogen production plant at the MPreis headquarters in Völs (seen in the foreground)

Völs/Austria

KLINGER ball valves for Tyrolean hydrogen pioneers

In Europe's largest hydrogen electrolysis plant, products from KLINGER Gebetsroither are now ensuring operational safety. Here's how the Upper Austrian technology company has designed and supplied valves for hydrogen in perfect cooperation with Tyrolean food retailer MPreis.

Industrial valves play an important role in hydrogen production when it comes to safely operating a system using such a challenging medium as hydrogen (H_2). In Tyrol, we are currently seeing how this new technology can be used in an environmentally friendly way: Food manufacturer MPreis has invested 13 million euros in the largest single-stack electrolysis system in Europe to date at the company's site in Völs. The hydrogen, produced from renewable sources, will also be utilized for a large bakery and its transport trucks. KLINGER Gebetsroither is the supplier of important components to this end.

"KLINGER ball valves have been installed in this hydrogen plant. We implemented the project together with the plant construction company Bilfinger," says Gerhard Praxmarer, Sales Manager at KLINGER Gebetsroither. Around 200 valves have been installed, including around 70 KLINGER KHA-FL-XC stainless steel ball valves and double-block-and-bleed (DBB). But that's not all: about 130 valve components, such as steel ball valves (KHA-FL-VIII), monoball ball valves, brass ball valves, and non-return valves have also been fitted.



Europe's largest single-stack electrolysis plant is located at the MPreis company site in Völs near Innsbruck. It uses green energy to produce green hydrogen.

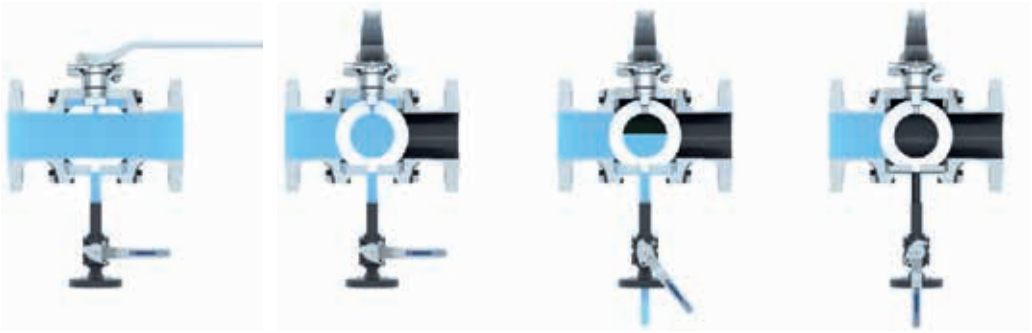




At the largest electrolysis plant in Europe, ball valves from KLINGER Gebetsroither are important components.



Double-block-and-bleed function of the KLINGER valves simply explained.



KHA ball valve fully open

KHA ball valve completely closed, dead space and ball filled with medium

Opening of the drain cock. Complete drainage of the dead space and inner space

KHA ball valve completely closed with opened drain cock. Dead space and ball completely emptied

Successful project execution for Europe's largest hydrogen plant

KLINGER Gebetsroither demonstrated its competence in dealing with sensitive media right from the moment the order was placed. "We were able to point out to the customer that the tender listed a number of specifications for the high-pressure area that were not necessary for the hydrogen system. Our PN40 valves are already designed for the standard operating pressure of 36 bar. We were therefore able to offer both a technically and financially ideal solution," says Markus Fuchs. The sales technician and product manager at KLINGER Gebetsroither, responsible for project management, worked closely with the partners at Bilfinger. Being commissioned by the largest plant manufacturer in the German-speaking region also shows that KLINGER Gebetsroither is renowned for its expertise well beyond the borders of Austria.

That this confidence in KLINGER's competence is justified is demonstrated by the meticulous work carried out by the back office when they clarified the technical details upfront. "For example, we discussed with the customer that the soft-seated variants of our valves are sufficient for the planned application," says Karl Vogl, Team Leader Internal Sales for valve projects. Before the order was placed, his team carried out several revisions of the offer for an optimal solution.

Specific challenges of the medium of hydrogen

Hydrogen itself brought its own particular challenges. "For this, we used special double-block-and-bleed valves. These are valves with a drain valve that allow double shut-off and draining of the dead and spherical interior. Thanks to this design, the tightness check in the passage of the ball valves can be carried out while the system is in operation. In addition, flanges with a projection in accordance with EN1092-1, form E, were required for the appropriate sealing of this challenging substance," explains Karl.

Fully automatic valves

Hydrogen has an extremely small molecular structure with a tendency to creep. This makes sealing complex and particularly safety-critical: Even small amounts of the leaked medium can cause an explosion. "In terms of mass, 10% hydrogen contains the same energy as 100% natural gas," says Markus about the energy source, which can otherwise be handled like a normal gas. Since the hydrogen system is fully automatic, KLINGER Gebetsroither has automated many of the installed valves. Pneumatic drives that open and close ball valves, and solenoid valves that regulate compressed air, were part of the order. The design of these components was meticulously planned in close consultation with the technical engineers. "Inquiries and queries are like playing a ping-pong game with the customer. Our technical sales department is a good sparring partner for the customer, and this process worked extremely well for the hydrogen project," says Markus.

Three special tanks can store a total of about 700 kilograms of hydrogen.



Madrid/Spain

Letting off steam with precision

The Tereos plant is increasing efficiency and decreasing costs thanks to the KLINGER energy audit.

> “Equipment that is not designed or calculated correctly automatically means a waste of energy. Every waste of energy means a loss of competitiveness.”

Ivan Gadea, Regional Sales Director for KLINGER Spain



While installing KLINGER valves and gaskets is an important first step toward creating a leaner, greener fluid control business, savvy customers don’t stop there. Expert energy audits by veteran KLINGER representatives generate a multitude of data, providing customers with increased energy efficiency and decreased CO_2 emissions, in addition to reduced water and fuel consumption. Suggested improvements help customers allocate resources in the most efficient manner, spot potential problems before they arise, and design a system that will operate at peak parameters.

The experience to make a difference

Ivan Gadea, Regional Sales Director for KLINGER Spain, began a steam development strategy six years ago in order to improve KLINGER’s offerings to energy audit customers. With his 17 years of experience in the field, Ivan was uniquely positioned to combine his field experience with his work in sales management in order to design a flexible package of training, testing, and product promotion that is readily customized to each plant’s needs. Ivan explains, “Equipment that is not designed or calculated correctly automatically means a waste of energy. Every waste of energy means a loss of competitiveness.”

Steam leaks mean losing money

On average, the annual energy loss of a steam leak costs approximately 800 euros per trap, with around 30 percent of the average system’s traps experiencing leaks at any given time. With a standard mid-sized chemical plant featuring 600 steam traps, this amounts to an annual loss of 144,000 euros. Such a needless increase in operating expenses can be mitigated through a KLINGER energy audit.

The most popular KLINGER energy audit service is a twice-yearly steam trap energy audit, which was the option chosen by food, chemical, and paper conglomerate Tereos for their Zaragoza plant in Spain. Tereos got in touch with KLINGER’s regional sales manager, who referred them to Ivan for a discussion about their facility’s particular audit needs. The team conferred and eventually agreed upon an eight-point audit, which scrutinized everything from system design and installation to product sizes and materials.

8-point plan for the energy audit:

1. Correct design and sizing of the steam and condensate line
2. Determine whether there is a recovery line for uncontaminated condensates
3. Check steam leaks inside the line and outside
4. S.T.E.A. (Steam Trap Energy Audit) inspection of steam traps by means of an ultrasonic system. Check the operation of the equipment, if it is the correct size and model, and if it has been fitted well.
5. Visual inspection of the air elimination equipment of the steam installation
6. Correct lagging of lines and pipe elements
7. Possibility of flash steam recovery in low-pressure equipment through flash steam tanks
8. Use of steam at the correct pressure (review of reducing stations)

How to reduce energy costs

The team started with a visual assessment of the steam and condensate line for product choice and line size, also verifying that the system contained a recovery line for uncontaminated condensates. The inside and outside of the lines were checked for steam leaks, and all steam traps were inspected ultrasonically. This specialized system checks the operation of all of the equipment, as well as ensuring that the size, model, and installation have been properly selected and completed according to the system's needs. Further inspection examined the air elimination equipment, as well as the correct lagging of the lines and pipe elements. Flash steam tanks and reducing stations were also reviewed for proper installation and material condition.

Alejandro Escribano has been Mechanical Maintenance Manager at Tereos for 15 years and oversaw the KLINGER audit to analyze and improve the Tereos facility. Not only does the audit provide valuable feedback for the plant to improve operational costs and efficiency, subcontracting the audit saves money in itself.

"The devices used to check the leakage of the steam traps are very expensive. It costs less for Tereos to call KLINGER for servicing once or twice per year," Alejandro shares. Bundling the use of these highly specialized tools with KLINGER professional advice creates more value for Tereos than if they were to purchase the devices on their own.

Learning from the past, improving the future

A KLINGER audit also allows the customer to benefit from industry knowledge as a whole, giving KLINGER the opportunity to pay it forward by using past system difficulties as teachable moments. One common issue that KLINGER audits look for is group trapping, a budget-friendly system design choice that can end up costing more in the long run. When the condensate from multiple pieces of equipment is discharged through a single larger trap, the differences in load and outlet pressure can cause damage due to condensate accumulation, water hammer, corrosion damage, and uneven drainage. Each piece of equipment should be discharged through an individual steam trap and a corresponding check valve, in order to maintain individual operating pressure conditions.



Ivan together with Javier Torres, the Technical Sales from KLINGER in Zaragoza, discussing problems in the steam lines.



Ivan checks different points from the outside of the steam trap looking for steam leaks.



Alejandro Escribano, Mechanical Maintenance Manager at Tereos, in his office in Zaragoza

Energy efficiency is a win-win

After thorough inspection and measurement of the system, Ivan and his team provided Tereos with a detailed audit report. This document walks the staff through the system step by step, pointing out devices that would benefit from updates or changes, and explaining the thought process behind each suggestion. Photographs and diagrams back up findings with clear data, providing measurements for each device. Specific devices are flagged for further inspection at a later date, allowing Tereos to build their own internal calendar for preventative maintenance in the future. As supply chain issues continue to plague the manufacturing industry, a clear schedule for product replacement is essential in order to ensure that product stock is available for repair or replacement.

By following through on the KLINGER audit suggestions, Tereos will be able to realize future savings of approximately four to five percent on the Zaragoza plant's annual expenditure, while also running a cleaner, more efficient operation. Though the cost savings will certainly be a benefit to Tereos, the improvement to energy efficiency is a win for everyone, as greener manufacturing practices help us all to build a better future.

> "The devices used to check the leakage of the steam traps are very expensive. It costs less for Tereos to call KLINGER for servicing once or twice per year."
>
> **Alejandro Escribano, Mechanical Maintenance Manager at Tereos**

Vienna/Austria

Valves for the “giant water heater”

KLINGER Gebetsroither supported a large-scale climate protection project at Wien Energie. In a new, high-performance power-to-heat system, valves from KLINGER Gebetsroither ensure smooth operation.

This exchange could not be more symbolic: Where previously there were two oil tanks for generating heat, there is now a “giant water heater”. This is the affectionate name of the new power-to-heat system at the Spittelau waste incineration plant in Vienna, which has been in operation since summer 2022. It replaces a fossil fuel combustion system with two instantaneous water heaters that generate district heating from excess green electricity – and also contribute to the stabilization of the power grid. In implementing this project, Wien Energie has taken a step closer to moving away from fossil fuels. Know-how and components from KLINGER Gebetsroither were key elements of this strong move for climate protection.

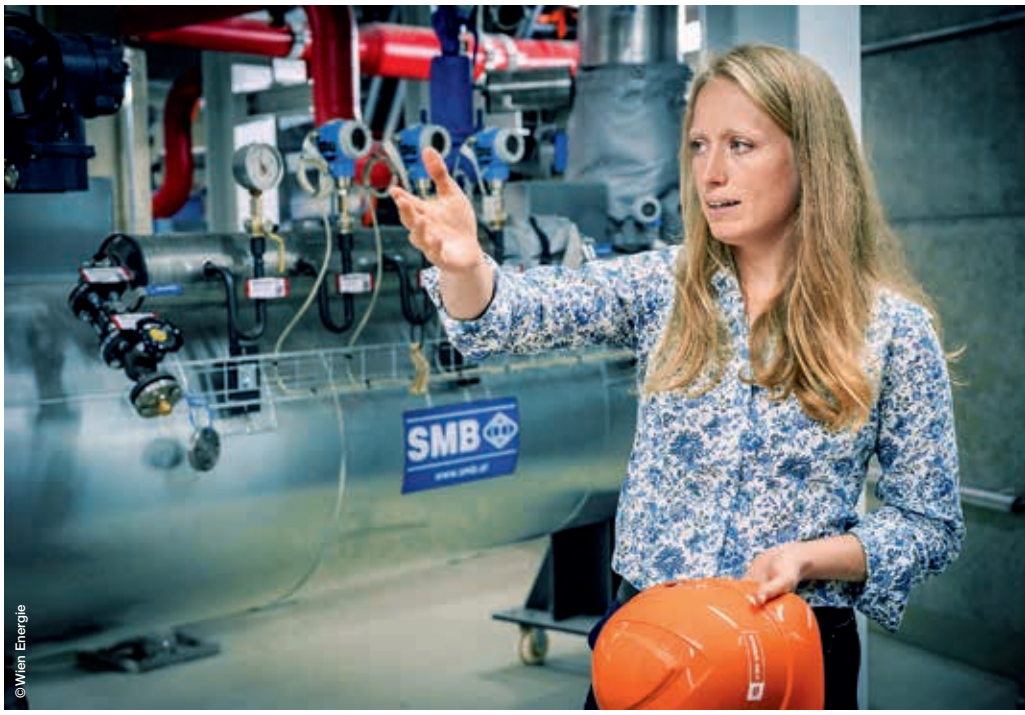
From tender to commissioning

“All shut-off valves, check valves, vent valves, and safety valves come from KLINGER,” explains Anna Gantner, the project manager of the 4.9 million euro undertaking by Wien Energie. When she was responsible for the tender for the project in spring 2019, all prerequisites pointed to the use of KLINGER products: They are ideal for use in primary district heating networks, pipes under high pressure, and temperatures of up to 155°C (311°F). “KLINGER components have already

Pumps for the electric heating system including KLINGER butterfly valves







Project Manager Anna Gantner managed the multi-million euro conversion project at the Spittelau waste incineration plant in Vienna.

proven themselves in use in district heating projects," says Anna.

The thing with the Brauner valve

Markus Fuchs, Sales Engineer and Product Manager at KLINGER Gebetsroither, was responsible for project management. For him, it was a "very interesting project with a sophisticated system of valves" that he had to oversee. "The biggest challenge was to combine all the trades in such a way that something good came out of it," says Markus. There were no major difficulties from design to tender to delivery – thanks to good advance planning and the already proven collaboration with Wien Energie's Decarbonized Heat Generation Assets (ANT) department. "I could call Markus Fuchs at any time and immediately got the information I needed. For example, there was the thing with the Brauner valve, a combined butterfly valve that is used specifically in district heating. I really felt well advised," confirms Anna regarding the smooth cooperation.

A further waste heat project at Wien Energie

The department works with the aim of climate protection: Anna never loses sight of the main goal of decarbonizing the district heating network, and not just with the power-to-heat system. "KLINGER valves are also often used for heat pump systems in particular, for example when waste heat is to be used," says the process engineer. She has also used KLINGER products for smaller systems, for example a heat pump at the Therme Oberlaa.

> "KLINGER components have already proven themselves in use in district heating projects."
>
> **Anna Gantner, Project Manager**



Water that reaches temperatures of up to 155 degrees Celsius in two instantaneous water heaters is delivered to the district heating network via a "sophisticated system of valves".



KLINGER IntegrityXpert's flange management software system offers an intuitive user interface.

Bradford/UK

Software powers leak-free operation

Flange management software by KLINGER reduces the time required by Sitech's busy inspection team.

When Sitech Services adopted KLINGER IntegrityXpert's flange management software system in early 2022, their team was quick to recognize the potential of the product. The company offers full-service maintenance, optimization, and troubleshooting to a variety of industrial customers, so their focus on data monitoring and process improvement made them the perfect fit for IntegrityXpert's statistics-driven interface. The real-time reporting and component-based calculations offered by this software allow facilities to monitor their systems with no lag time, giving Sitech the data they need to provide prompt service to customers eager to maintain seamless leak-free operation.

Sitech is a leading technology partner for achieving maximum plant performance and cost-effectiveness.

The span of an ecosystem

One of the most attractive aspects of IntegrityXpert to Sitech was the user-friendly nature of the design interface. Narcis Mujagic, Quality Manager at Sitech Services for 30 plants, was quick to point to the flexibility and ease of use as a deciding factor when choosing the product over other options. He said, "At Sitech we use 120 apps. You need something that's very easy to implement. IntegrityXpert is complex and it has many different features, but it's still intuitive. I taught myself in two hours how to use it."

Because Sitech works for large international corporations but has mainly activities at their plants in the Netherlands, they often bring together teams who may not share a common language and who come from many different fields of training. IntegrityXpert's low barrier to entry allows these teams to hit the ground running without a long or complicated ramp up.



Narcis Mujagic (left) and Bart Moors (right) at the KLINGER Service Center Limburg

> “At Sitech we use 120 apps. You need something that’s very easy to implement. IntegrityXpert is complex and it has many different features, but it’s still intuitive. I taught myself in two hours how to use it.”
>
> **Narcis Mujagic, Quality Manager at Sitech Services**

Narcis and Bart Moors, Manager of the Service Center Limburg at KLINGER The Netherlands, have been in close contact for many years. Bart and his team at the KLINGER Service Center Limburg support the Chemelot industrial park. It was back in 2020 when Bart identified the USP and added value of IntegrityXpert to meet the requirements of Sitech’s turnarounds. Hence Bart talked to Paul Smith, Services Director, and Michael Pallister, Sales Director, both at KLINGER UK. It’s not just the long-standing relationship between KLINGER and its customers that has made this project a success, it’s also the ability to think outside the box and use the network within the KLINGER Group.

Unlimited scaling factor

Besides an intuitive user interface, IntegrityXpert also offers a nearly unlimited scaling factor, allowing Sitech to input massive amounts of data for tracking and analysis. Keeping inspection and maintenance information organized and close at hand is essential to meet the constantly tightening regulatory guidelines set by multiple countries. Before IntegrityXpert, tracking this data required a huge chunk of man hours that had to be carved out of the inspection team’s already busy schedule. As Narcis laments, “If you have 16 inspections, you can just use checklists. If you have 6,000 inspections, you have a huge issue.” As long-term data builds up and additional patterns emerge, the Sitech team eventually hopes to develop more precise predictive maintenance statistics, allowing them to schedule plant downtime during optimum windows to maximize product life span without compromising joint integrity.



The Chemelot Industrial Park in the Netherlands is home to many plants overseen by Narcis Mujagic, Quality Manager at Sitech Services, and his team.

Sitech Services

was founded in 2008 to help clients in the process industry to achieve maximum plant performance and cost-effectiveness. The company, located in Geleen, The Netherlands, provides maintenance, project, and turnaround services, and also specializes in technological applications, the right expertise, the best innovations, and far-reaching digitalization.



Eudora Energia's heliothermal power plant in Rosana, São Paulo

São Paulo/Brazil

The industry's shining star

Very few companies are capable of producing valves that meet the stringent requirements of heliothermal energy. KLINGER Brazil is one of them – and was able to support a trailblazing green energy project.

A new chance for KLINGER Brazil to contribute to a green energy project recently came about in Rosana, São Paulo, where Eudora Energia just completed the nation's first heliothermal power plant. Heliothermal energy, also known as concentrated solar power or CSP, converts solar energy into heat through the use of parabolic mirrors and thermal fluid.

The sunrays are reflected and concentrated by the mirrors into a single point, which heats the thermal fluid and produces steam via heat exchange. This steam drives turbines, which run a generator and produce electricity. Eudora Energia, a specialist in energy solutions, started to develop this technology in 2015.

When Eudora was designing the plant project, the team conducted research on the valve market to find out their options for fluid control. Once the exact specifications were finalized, they realized the choices were limited: Few companies were capable of producing valves that met the stringent requirements necessary for controlling thermal fluid with the precision needed for the project. Their search led them to KLINGER, who had a proven history with the medium.

> "Eudora did technical research on the success we have had for over 20 years in using our valves in applications with thermal oil. This was a great motivator for installation in the project."

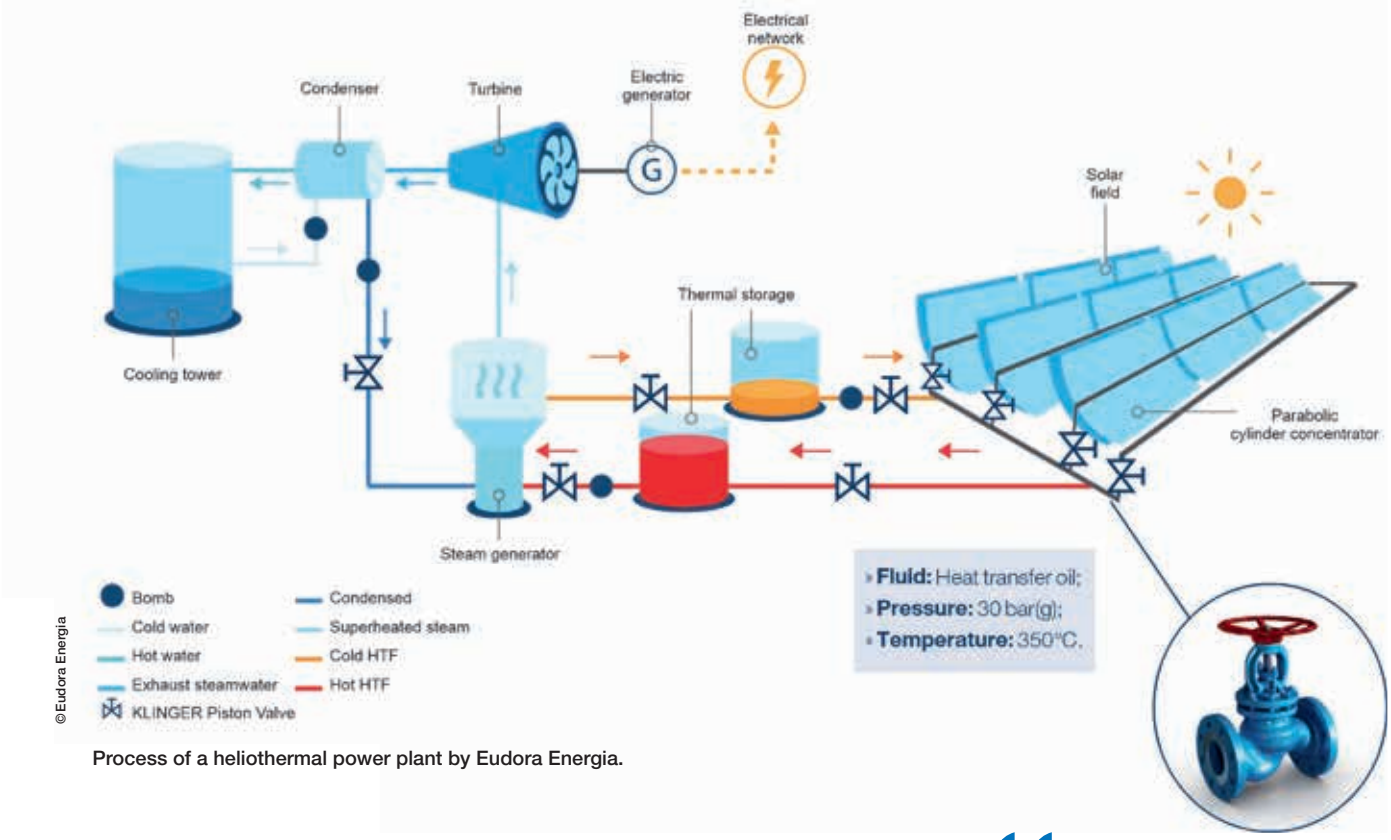
Rodrigo Rígolo, Sales Executive for KLINGER Brazil



Five arrays of parabolic troughs heat up a thermal fluid to 350°C (662°F).



KVN piston globe valves are a vital part of the green energy project.



Process of a heliothermal power plant by Eudora Energia.

"Eudora did technical research on the success we have had for over 20 years in using our valves in applications with thermal oil. This was a great motivator for installation in the project," explains Rodrigo Rígolo, Sales Executive for KLINGER Brazil.

A highly precise valve for a highly precise project

After conferring in detail with Lucas Hipolito, Project Analyst at KLINGER Brazil, Eudora decided on KVN piston globe valves, which feature class VI sealing in accordance with ANSI/FCI standards, guaranteeing a high level of water tightness and reliability. The high durability of the valves leads to less frequent servicing and fewer replacement parts. This reduces waste and avoids fugitive emissions, which helps to keep the project as eco-friendly as possible. Another key feature was the valves' ability to fine tune the flow levels, giving the team the ability to make granular adjustments as needed without taking the system out of service.

Once valve installation was underway, the value of KLINGER continued to pay off for Eudora through expert and readily available technical support, which allowed the team to configure the valves with even higher levels of precision than originally expected. Alessandro Sete, Works and Project Manager at Eudora, was delighted: "The benefits of the valve presented were even better than the initial project required. We had in our hands a large and innovative component, with no chance of error. We opted for KLINGER valves, as we needed to install the safest on the market." After nearly a year of problem-free operation, it is clear: the Eudora plant may be fueled by the power of the sun, but the KVN piston globe valves are truly the shining star of the project.



Lucas Hipolito (left) and Rodrigo Rígolo (right) are proud to have contributed to a green energy project.

> "The benefits of the valve presented were even better than the initial project required. We had in our hands a large and innovative component, with no chance of error. We opted for KLINGER valves, as we needed to install the safest on the market."

**Alessandro Sete,
Works and Project Manager
at Eudora**



© Alessandro Sete/Eudora Energia



Niels Højensgaard at KLINGER Denmark was looking for a different approach to recycling gasket material.

Copenhagen/Denmark

A match made in Copenhagen

KLINGER Denmark goes green with partner The Upcycl to reuse materials.

Customers will be pleased, and possibly confused, to hear that KLINGER Denmark has gotten into the matchmaking business – waste matchmaking, to be precise. The Danish KLINGER subsidiary has joined with The Upcycl in order to find industry partners who can use KLINGER waste materials for design and development projects. This new agreement will allow KLINGER to increase sustainability efforts by not only recycling waste, but also by actively seeking alternate uses for it that bypass the resource-heavy recycling process.

Gasket scraps gain a new life

Niels Højensgaard, Production Team Manager for KLINGER Denmark, was searching for a way to recycle waste materials from KLINGER Denmark, but no companies were willing to take it. His team did some research and stumbled across The Upcycl, who was eager to engage in dialogue. CEO Rikke Ullersted quickly saw potential in the gasket waste materials, particularly the rubber cork. They found a company that sells products for kindergartens, where they use the rubber cork on top of wooden chairs to dampen acoustics and provide grip. Rikke's bright smile paints a mental picture as she shares an anecdote: "When the kids are in their winter clothes, you know, a snowsuit, sometimes they slide off the chairs, because the fabric is slippery. So, now they can actually stay on the chairs with this rubber cork."

The look and feel of waste material

Niels recognizes that keeping an open forum is the best way to encourage further collaboration. As he explains, designers often need to see the materials in person in order to understand their potential uses, so he invites them to KLINGER on site, to examine the scrap, hands on: "You have to see the material, you have to feel it with your hands, to imagine what you can use it for. Architects and designers come here and feel, and look, and manipulate. It's very tactile." Rikke agrees, adding, "We work with showrooms now. We didn't in the beginning, but we realized that to be able to use a material, it has to be felt, it has to be seen. You cannot do it digitally."



© The Upcycl

The Upcycl showroom in Copenhagen lets customers experience different materials hands-on.



> “You have to see the material, you have to feel it with your hands, to imagine what you can use it for. Architects and designers come here and feel, and look, and manipulate. It’s very tactile.”

Niels Højensgaard, Production Team Manager for KLINGER Denmark



Gasket waste material has a lot of potential – and The Upcycl made use of it.

Overcoming obstacles to advance sustainability

Despite the successful collaboration between KLINGER Denmark and The Upcycl, there is still more work to be done. While the waste KLINGER provides has found steady use, Rikke believes there are additional markets to be considered. Potential uses for KLINGER gasket waste such as kitchen installations and all-weather flooring look promising, but require comprehensive testing to ensure food safety, determine chemical compatibility, and address environmental factors. As Rikke points out, caution is the group’s priority: “We have some materials, some composite, that we don’t know how they will act when they are moved. How will it react to sunlight? How will it react to water? We need to take it into a testing space.”

New paths and a look beyond the horizon

Finding further markets will allow KLINGER Denmark to expand sustainability efforts, while also allowing other companies to develop their own products in ways they had not previously anticipated. This is the value of The Upcycl’s matchmaking: Specialists from a variety of disciplines approach materials with fresh eyes, often brainstorming material uses that entrenched experts would not have thought of on their own. “What KLINGER sees as a resource, or as a potential material, might be prohibited in other areas, like for the semiconductor industry or the furniture industry. They look at materials in totally different ways, so you have to start with the materials,” Rikke says. This materials-first approach is catching on, even trickling from business down to university, affecting the way design is taught to students.

For one final success in matchmaking, Rikke has convinced Niels to allow student visitors to KLINGER as well. They both believe that exposing design and architecture students to the waste matchmaking process early in their careers can only benefit the sustainability industry in the long term. As Niels points out, “We are all stronger now than we were when we started working together.”



Rikke Ullersted, founder and CEO of The Upcycl

KLINGER Holding GmbH
Am Kanal 8-10 » A-2352 Gumpoldskirchen
T +43 2252 607 186 30
office@klinger-international.com

www.klinger-international.com

KLINGER trusted. worldwide.

info@klinger.in

www.klinger.in

KLINGER India

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