ISSUE APRIL 2025

KLINGER
trusted. worldwide.

KLINGER YEARBOOK

Safety, Solutions, Services

www.klinger-international.com

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

Dear Customers,
Dear Partners,

More than a staggering 1,000 key performance indicators (KPIs) have been established to monitor sustainability efforts in accordance with the new ESG reporting mechanism that is now mandatory within the EU. At KLINGER, we are committed to the goals behind the ESG efforts, which aim to improve environmental, social, and governance performance in everything we do. An endeavor of this magnitude needs a strong driving force to succeed: Yusuf Avci and Ines Weikl are the masterminds behind KLINGER's ESG strategy – and the experts in our midst who are able to translate the KPIs into applicable actions for all of our 64 business units.

Their interview on **page 38** kicks off the sustainability section of this yearbook. Once again, we present the impressive success stories of our sustainable solutions that promote energy efficiency, resource conservation, and a genuine concern for the world we live in. Reducing waste, conserving water, and producing green energy are just a few examples of how KLINGER's commitment to future generations is translated into credible action. To strengthen our efforts, we need to expand our reach into new industries and countries. In their interview on **page 8,** KLINGER's CEOs Daniel Schibli and Christoph Klinger-Lohr explain the strategy behind the acquisitions in 2024, which are described in detail on **page 14.**

The following pages will give you an insight into KLINGER's activities around the globe. Our subsidiaries show exceptional aptitude in providing new solutions for partners with demanding projects. The technical challenges are breathtaking, with KLINGER being asked to help equip submarines or an airport. Thanks to the ingenuity of our engineers and their teams, safe, efficient, and reliable solutions are implemented with great success. The loyalty of our customers is the best measure of the quality we continue to deliver: Examples can be found on **page 27,** where KLINGER Bartsch tells the story of a long-standing partnership, or on **page 21,** where KLINGER Thailand receives special recognition.

With several global challenges ahead in 2025, we at KLINGER promise to continue on a steady course, guided by our commitment to quality, innovation, and reliability. We hope you enjoy our retrospective of 2024 and thank you for your interest in our yearbook.

Christoph Klinger-Lohr
CEO

Daniel Schibli
CEO

Peter Müller
CFO

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5 QUESTIONS

? How many charging stations for electric vehicles have been installed at the KLINGER Group headquarters in Gumpoldskirchen?

» **Find out on page 51!**

? What advice does Amanda Carvalho have for young women considering a career in engineering?

» **Read more on page 40!**

? Where are Argentina's largest uranium deposits located?

» **More on page 30!**

? Which institution is celebrated every year on June 11 in Brazil?

» **Further details on page 32!**

? What is the temperature of the La Défense district heating network in Paris?

a) 190 °C
b) 220 °C
c) 347 °C

» **Think you know the answer? Check on page 46!**

The KLINGER stand personnel (all dressed in branded white polo shirts and sneakers) were strong in number.

Frankfurt/Germany

Blending tradition with innovation

From June 10 to 14, ACHEMA 2024 in Frankfurt, Germany, brought together the world's leading players in the process industries.

As a top event in chemical engineering, pharmaceutical and biotechnical manufacturing, and environmental services, ACHEMA provided a dynamic platform for the KLINGER Group to showcase our cutting-edge solutions and services. Following the theme "We keep things flowing," the KLINGER Group made a bold impression with a newly designed 220-square-meter booth, featuring ten subsidiaries as co-exhibitors.

With nearly 40 knowledgeable staff members present during the week, KLINGER ensured meaningful interactions with visitors. The large team facilitated detailed discussions, which enhanced the visitor experience. "It was gratifying to see how we collaborate seamlessly as the KLINGER family," says Jasmin Ladinig, Team Lead Marketing and Communications at KLINGER Holding, who was responsible for organization together with Christina Raimann, former Head of Group Corporate Services at KLINGER Holding.

A segment-oriented approach displayed the same qualities, underlining KLINGER's commitment to offering customized, integrated solutions. In contrast to previous trade fairs, the KLINGER Group exhibited a complete portfolio, covering the following segments:

- Chemical Solutions
- Green Solutions
  - District Heating
  - Geothermal Energy
- Hydrogen Solutions
- Services

Scott Whelan (left), Technical Lead at KLINGER UK, demonstrated the IntegrityXpert live to curious visitors.

© Stefan Röhler

Despite not being located at the main entrance of Hall 8, the KLINGER booth attracted significant attention and stood out as a real focal point.

Daniel Schibli, CEO of the KLINGER Group, welcomed members of the Klinger-Lohr family and Supervisory Board.

At the booth party, an acoustic band set the mood and encouraged guests to sing along.

EXHIBITORS

The following KLINGER subsidiaries presented their products and services:

- KLINGER Dichtungstechnik
- KLINGER Die Erste
- KLINGER Fluid Control
- KLINGER Germany
- KLINGER Italy
- KLINGER Kempchen
- KLINGER Schöneberg
- KLINGER Switzerland
- KLINGER Turkey
- KLINGER United Kingdom

Showcasing digital transformation

"In line with the ongoing digitalization, KLINGER introduced new digital elements at our booth. Visitors were fascinated by 3D visualizations of processes such as chemical plants, Power-to-X, district heating, and geothermal energy," says Christina. The technical presentations were complemented by the booth's catering throughout the event. However, it has also become a tradition to celebrate with a twist, creating a memorable atmosphere for informal conversations and relationship-building. On Wednesday, the third day of the exhibition, the team went one better with the catering by offering a KLINGER signature drink and delicious food served as a buffet.

Special visit from the Supervisory Board

A particular highlight and honor was the visit from the KLINGER Group's family owners and Supervisory Board members. "The joint corporate presentation of KLINGER companies emphasized our collaborative spirit and comprehensive expertise within the group, focusing on our commitment to safety, solutions, and services," says Daniel Schibli, the KLINGER Group's CEO.

In summary, ACHEMA 2024 was a remarkable event for the KLINGER Group, blending tradition with state-of-the-art innovation. This successful exhibition has energized the KLINGER Group, and we are now looking forward to ACHEMA 2027. As we continue to innovate and grow, we remain committed to keeping things flowing.

Interview with the KLINGER CEOs

“Stability is paramount”

Growth, but not at any price: KLINGER CEOs Daniel Schibli and Christoph Klinger-Lohr shed light on the strategy behind the latest company acquisitions.

With its current 93 locations worldwide, the KLINGER Group has reached a formidable size. How big can – and indeed should – a company like KLINGER become? Where are the limits to growth?

Christoph Klinger-Lohr: There are no limits. We want to grow, for as long as and as big as is healthy for the company. We focus on acquisitions that fit our profile, both financially and in terms of our organizational structure. Our strategy is one of responsible growth, but not at any price. The company’s firm footing is paramount.

Daniel Schibli: We don’t have to grow; we want to grow, and we want to do so at a sustainable rate. We cannot aspire to buy large companies. That wouldn’t be in line with our corporate and management culture. At the end of the day, whether or not we decide to acquire a company depends on whether it fits in with our core business.

You have already expanded your core business with recent acquisitions: thermal insulation in South Africa and water treatment in Portugal, for example. Does KLINGER want to diversify even further and reach out beyond its core competencies?

Daniel: There must always be a clear connection to what we do. The two examples you’ve mentioned demonstrate this perfectly: thermal insulation in South Africa fits in with our local strategy and represents a vertical expansion of our business model there. The same goes for water treatment in Portugal, where water is indeed one of our main segments.

Christoph: Our core business is always about systems: we improve safety, increase efficiency, and reduce emissions. There is always room to add products and services that make sense for our portfolio, and we’re always open to such additions. We can certainly expand our business when it comes to maintaining and managing systems in the best possible way.

Read the full interview on our website:

Christoph Klinger-Lohr (left) and Daniel Schibli (right)

KLINGER A. W. Schultze was founded in 1878 in Hamburg, Germany, and is now based in the Schleswig-Holstein city of Geesthacht.

Geesthacht/Germany

KLINGER A.W. Schultze's first female boss

When Fenja Grote began her apprenticeship at KLINGER A. W. Schultze in 2011, she never dreamed that she would one day be the Managing Director of the company with 90 employees.

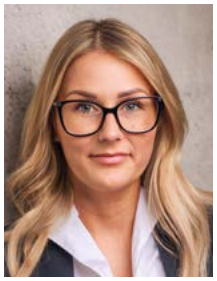
"I wanted to work in an industry that contributes to protecting the environment." That's why Fenja Grote opted for a sealing specialist that makes a vital contribution to reducing emissions: KLINGER A. W. Schultze. While Fenja became familiar with all the departments during her apprenticeship, her specialization in wholesale and foreign trade soon saw her join the commercial team. With her affinity for numbers and quick grasp of new concepts, she rapidly found her way around the company, although it did take a while to gain an overview of the wide range of products at KLINGER A.W. Schultze.

"Giving up is not an option"

Perseverance served Fenja well along her career path: joining the Purchasing department in 2013, her activities quickly expanded to include Sales and Distribution, and she became a management assistant in 2017. Besides her work at KLINGER A. W. Schultze, she focused on further training, completing a Bachelor's and then a Master's degree in business administration. Willpower saw her through the arduous task of studying at night: "When I start something, I see it through to the end. Giving up is not an option," she says.

On-the-job learning was also an important aspect, not least when she took over commercial management, complete with power of procuration, at KLINGER A. W. Schultze in 2019. "That's when I realized that my own perspective doesn't necessarily always match other people's. So you try to put yourself in the other person's shoes and develop a basic understanding to find a workable solution," she says about her initial experience in management. In her new position as Managing Director, she can now put these lessons learned to good use: challenges like technological change and a sustainable future are top of the agenda for KLINGER A. W. Schultze's first female boss.

> "When I start something, I see it through to the end. Giving up is not an option."
>
> **Fenja Grote, Managing Director of KLINGER A.W. Schultze**



Fenja Grote has been the Managing Director of KLINGER A. W. Schultze since January 1, 2024, making her the second woman to hold this position at the KLINGER Group.

Trimad operates on the competitive Slovenian market from its headquarters in Domžale.

Domžale/Slovenia

Local legacy, global impact

The KLINGER Group and Trimad have a long-standing partnership and share similar values. Trimad's strong local presence ensures reliable sealing and fluid control solutions for the Slovenian and Croatian markets.

Jure Žnidaršič, CEO of Trimad

Trimad, a family business established in 1989 by Drago Iljaš – and now led by CEO Jure Žnidaršič – embodies a unique blend of in-depth local knowledge and international partnerships. The team may be small, but it reflects a family-like spirit where everyone is involved in the sales effort, ensuring a personal connection with its customers. Since 1993, Trimad's partnership with KLINGER has been key to its growth, expanding its representation from Slovenia to Croatia, Bosnia, and Serbia. Despite a small and competitive market, Trimad's emphasis on quality has set the company apart. "KLINGER is kind of a door opener," adds Jure, reflecting on the credibility gained through this ongoing partnership.

Conquering a price-driven market

The Slovenian market is highly competitive, especially for gaskets. However, the focus of both Trimad and the KLINGER Group on delivering the highest quality resonates well, particularly with industries where reliability is paramount. In addition, Trimad is involved in major projects, including supplying piston valves for steam applications to companies such as Goodyear and servicing major pharmaceutical players such as Novartis and Sandoz. These long-term relationships are indicative of Trimad's success in providing solutions where quality cannot be compromised.

Looking to the future

The future holds both challenges and opportunities for Trimad. It recognizes the need for sustainable solutions. The introduction of KLINGER Gaja, a new sustainable gasket from KLINGER Dichtungstechnik, aligns well with the growing focus on sustainability across Europe, and Trimad is ready to be part of this journey. However, finding experienced personnel is a challenge it continues to face, not only within its own ranks but also in the broader market. "Everything depends on the people," said Jure at their 35th anniversary celebration held in September 2024, emphasizing the importance of partnerships. Trimad's family values and focus on quality position the company as a trusted partner for years to come.

> "KLINGER is kind of a door opener."
>
> CEO Jure Žnidaršič

Skedsmokorset/Norway

A tale of two milestones

Bagges celebrates 130 years in business, and 100 years of partnership with KLINGER.

Norwegian supplier Bagges is no stranger to longevity. Founded in 1894 in Kristiania (now Oslo), the company is reflecting on 130 years of operation, as well as 100 years of partnership with KLINGER. Family owned since its inception, Bagges intentionally fosters partnerships with like-minded companies and customers. As CEO Geir Gudmundsen explains, “We have a strong focus on long-term relationships, like the one with KLINGER. I think we have a different way of working, and we understand each other better.”

Geir Gudmundsen, CEO of Bagges

Stian Hagen, Head of Sales at Bagges

> “We have a strong focus on long-term relationships, like the one with KLINGER.”
>
> CEO Geir Gudmundsen

Embracing change

Key to the company’s success is its adaptability. Unlike many family-owned ventures, Bagges isn’t hindered by dependence on tradition or reluctance to disrupt the status quo. Instead, the firm encourages constant innovation across its portfolio and business practices. Because they embrace change instead of resisting it, the team is proficient at navigating the constantly shifting landscape of the industrial market. For example, insulation and fire protection products made from asbestos were a major part of Bagges’ catalog during the early twentieth century, but once the material’s hazards became known, the company quickly pivoted to safer and greener substitutes. According to Stian Hagen, Head of Sales, “The biggest challenge for Bagges lies in adapting to rapid changes in regulatory standards, environmental requirements, and market expectations.”

A green partnership

Just as they pivoted to greener materials in the past, Bagges is now working to further transform the business in response to globalization and environmental change. KLINGER is playing a key role in this process, providing the valves and gaskets needed to support the rapidly evolving hydrogen electrolyzer market and other state-of-the-art fuel systems. As the energy market continues to evolve, Bagges and KLINGER’s partnership will allow them to offer global customers a wider range of options. “If you look at environmental change, there is big potential,” Stian says. “You have to be aware of what is happening in the market.” Geir adds, “Every company has a major focus on ESG, and we can see a lot of possibilities.”

BAGGES
ANNO 1894

In its partnership with KLINGER, the Bagges team stands for longevity.

WHAT'S NEW AT KLINGER

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Wadeville/South Africa

A new milestone in the energy sector

KLINGER South Africa has taken a decisive step toward expanding its service portfolio with the acquisition of Intertherm, a prominent provider of thermal and acoustic insulation.

Phillip Herbst is the Managing Director of KLINGER South Africa.

Officially welcomed into the KLINGER Group on January 1, 2024, KLINGER Thermal Insulation brings more than just market share – it adds a wealth of specialized expertise that is set to reshape energy efficiency solutions for industrial customers throughout the region.

With its roots in Gauteng, KwaZulu-Natal, and the Western Cape, Intertherm's established presence will strengthen KLINGER South Africa's already extensive activities in the country. According to Managing Director Phillip Herbst, "We are not only gaining a new business segment but also invaluable experience and innovation, which will help us deliver comprehensive, cutting-edge services."

A new era in insulation solutions

"Effective energy conservation begins with advanced thermal insulation, ensuring minimal energy loss and maximum efficiency. By combining expertise in cutting-edge acoustic insulation, modern noise reduction systems, and specialized scaffolding solutions, we provide a comprehensive, one-stop shop for all industrial insulation needs – delivering sustainable resource conservation and enhanced operational performance," says Johan Nel, Business Unit Manager Thermal Insulation at KLINGER South Africa.

For the South African KLINGER subsidiary, this acquisition represents a new but perfectly fitting product segment. Christoph Klinger-Lohr, CEO of the KLINGER Group, notes, "We are delighted to be entering new territory supported by Intertherm's extensive capabilities. Our goal is to provide a truly unparalleled service offering in the South African market."

Groundbreaking partnership

The synergy between KLINGER South Africa and Intertherm is already evident in significant joint projects with companies such as PG Bison, Palabora Mining Company (PMC), and Energy Partners. From supplying insulation for drying installations to providing cold insulation for tanks, these projects demonstrate the high-quality and innovative solutions that this merger will make more widely available. Through this united vision, KLINGER's Thermal Insulation business unit is poised to lead the future of insulation technology.

Intertherm excels at cladding and insulating tanks and pipelines.

DIUNIS was founded in 1922 as a technical wholesale business.

Wuppertal/Germany

KLINGER Holding acquires DIUNIS Stanztechnik

The KLINGER Group expands its reach by acquiring DIUNIS Stanztechnik, an expert in volume gasket manufacturing.

Guido Bauerfeld steered the company's fortunes for more than 40 years.

As of April 16, 2024, Norbert Weimer took over the helm at DIUNIS as Managing Director.

Since April 16, 2024, DIUNIS Wilhelm Gärtner GmbH Stanztechnik, a specialist volume cutting company based in Wuppertal (Germany), has been part of the KLINGER Group. DIUNIS is known for its expertise in manufacturing small, non-metallic gaskets. This acquisition is a strategic extension of KLINGER's current product range and marks a significant step in the company's expansion efforts.

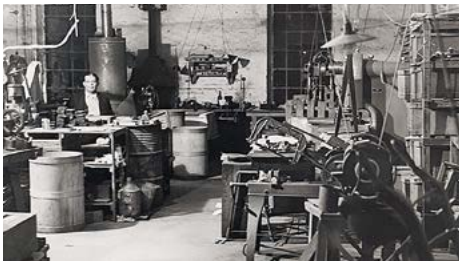
Continuity of the KLINGER Group

Founded in 1922 as a technical wholesale business, DIUNIS was acquired by the Bauerfeld family in a management buy-out in 1977. Guido Bauerfeld, former owner of DIUNIS, expressed his approval of the acquisition: "We are pleased to hand the company over into safe hands, seeing the continuity of the KLINGER Group as a good home for the further growth of DIUNIS."

As part of the acquisition, Norbert Weimer has assumed management responsibilities for DIUNIS, ensuring continuity and a focused strategic direction. KLINGER Group CEO Christoph Klinger-Lohr remarked, "This acquisition ties in well with our portfolio, significantly enhancing our market offerings. It not only strengthens KLINGER's ability to serve a wider array of industrial needs but also reaffirms the company's commitment to growth and excellence in the global market."

DIUNIS has a large product range that comprises standard gaskets as well as intricate shapes cut to customer drawings and made of rubber or asbestos-free fiber materials, including:

- Union end flat seat O-rings
- Bonnet seals
- Adapter gaskets
- Casing gaskets
- Distributor gaskets
- Gas meter gaskets
- Water flow meter gaskets
- Single nozzle gaskets
- Cover gaskets
- Housing gaskets
- Valve seals
- Radiator gaskets
- Heating seals.



With more than 80 years of experience, DIUNIS has extensive expertise in cutting gaskets.

Madrid/Spain

KLINGER Spain expands with the acquisition of Productos Salinas and Juntas Besma

Two renowned companies are now part of the KLINGER Group. With the acquisition of Productos Salinas and Juntas Besma, KLINGER Spain has strengthened its position in the sealing solutions market.

On September 17, 2024, KLINGER Spain proudly announced the acquisition of two renowned companies in the sealing solutions market: Productos Salinas and Juntas Besma. This strategic move significantly strengthens KLINGER's presence in the Spanish market and introduces an expanded range of products, offering enhanced value to customers and partners. With the addition of sealing products, industrial gaskets, rubbers, engineered mechanized profiles, and the exclusive Vulkollan® polyurethane, KLINGER Spain will extend its reach in various industries.

Since September 17, Manuel Tabasco has been managing not only KLINGER Spain, but also Productos Salinas and Juntas Besma.

Daniel Schibli, CEO of the KLINGER Group

Expanding the product range and market presence

Productos Salinas, known for its expertise in manufacturing customized sealing products, brings an impressive product line to the KLINGER family, including sealing products, industrial gaskets, rubbers, and engineered mechanized profiles. In addition, Productos Salinas holds an exclusive license from Covestro in Spain for the Vulkollan® polyurethane and is a key player in the supply of these products. Juntas Besma complements this offering with its commercial capillarity especially in the Basque country, offering sealing-related products from well-known suppliers.

"With the acquisition of Productos Salinas and Juntas Besma, KLINGER Spain has strengthened its presence in the Basque country and at the same time added a truly seamless product portfolio of sealing solutions that complements the existing

"We are delighted to have found the perfect partner for the future of Productos Salinas and Juntas Besma. We were particularly interested in ensuring that the companies were in good hands," said the Carmen Lequerica family, former shareholders of Productos Salinas and Juntas Besma, when the contract was signed with Daniel Schibli (second from left) and Manuel Tabasco (right).

KLINGER Spain portfolio," says Manuel Tabasco, Managing Director of KLINGER Spain. This acquisition opens the door to previously untapped industry segments, including renewable energy (wind energy) and OEMs serving various industry segments.

Integration and future growth

The acquisition allows KLINGER Spain to seamlessly integrate the expertise and facilities of Productos Salinas and Juntas Besma seamlessly into its operations. Both companies, located in Zaratamo, Vizcaya, operate from a shared facility with a 3,500-square-meter manufacturing plant and a 5,000-square-meter warehouse. KLINGER Spain plans to maintain the current staff and facilities, ensuring stability while promoting future growth.

Manuel Tabasco will continue to lead Productos Salinas and Juntas Besma as Managing Director, working alongside Gorka Lasa, General Manager of both acquired companies, and a dedicated team of over 70 employees. This integration aims not only to strengthen KLINGER's market presence in the Basque country but also to drive expansion beyond Spain's borders.

A strategic move for internationalization

The Basque country is a major industrial hub, and this acquisition will allow KLINGER Spain to benefit from local proximity to its customers, boosting its presence in northern Spain. In addition, the expanded product portfolio, combined with the new capabilities brought in by Productos Salinas and Juntas Besma, sets the stage for KLINGER's ambitions of further internationalization.

Daniel Schibli, CEO of the KLINGER Group, states, "Productos Salinas and Juntas Besma are highly complementary acquisitions in terms of product, industry, market orientation segments, customers, and location. We are glad to have them on board." The acquisition offers cross-selling opportunities and strengthens KLINGER's position as a leading supplier of industrial sealing solutions.

> "Productos Salinas and Juntas Besma are highly complementary acquisitions in terms of product, industry, market orientation segments, customers, and location. We are glad to have them on board."
>
> **Daniel Schibli, CEO of the KLINGER Group**

Breaking ground for the 25,000-square-foot addition to KLINGER Thermoseal's facility in January 2023.

Sidney/USA

Delivering on global standards

With multiple successful joint ventures already in place, KLINGER brings rubber-coated metal (RCM) manufacturing to the United States.

For years, KLINGER's Polystrat has been a key component in the automotive and industrial markets. First developed by KLINGER Switzerland, this rubber-coated steel is used to manufacture brake shims and gaskets for automotive, heavy-duty/off-highway vehicles, compressors, and industrial applications. In 2018, KLINGER began a partnership with Sinyuan Industry Group to produce Polystrat in Ningbo, China. By duplicating the successful process already used in Switzerland, the team was soon ready to take on China, the world's largest automotive market. With European and Asia-Pacific markets fully supported, the KLINGER team was now positioned to take on North America.

At the same time, KLINGER Thermoseal in Sidney, Ohio was ready and willing to expand. Scott Peters, KLINGER Thermoseal's Managing Director, explains: "KLINGER has a presence in two other countries and knows how to build the manufacturing equipment and successfully produce rubber-coated metal material. There was no KLINGER RCM presence in the US, so the foundation for the collaborative effort between three continents was laid."

Soon after, David Schweiger, then serving as KLINGER Thermoseal's Director of Engineering, became a key player in the expansion effort. They broke ground on the new 25,000-square-foot addition in

Production at the new KLINGER RCM USA facility will be ramped up in phases.

On May 15, 2024 a grand opening was held at KLINGER RCM USA.

David Schweiger, General Manager of KLINGER RCM USA

January 2023, and the building was completed in the fall. The new factory addition was specifically designed to solely house KLINGER RCM USA's advanced production equipment. In November 2023, David was promoted to General Manager of KLINGER's newest subsidiary: KLINGER RCM USA.

A matter of teamwork

One critical factor in getting the new division up and running quickly was the wealth of support from other KLINGER sites. Just as the original Swiss team helped the Ningbo team, the Ningbo team paid it forward to the US team: Sinyuan played a pivotal role in the design, construction, and installation of the production equipment. Additional expertise and assistance including product and sales support was provided by KLINGER Switzerland. Jackie Riley, Marketing Manager for KLINGER Thermoseal, explains, "There are many challenges to overcome with a global project like this. Strong relationships were built and it was both rewarding and exciting to celebrate the success together."

A grand opening was held on May 15, 2024, and featured a ceremonial ribbon cutting, followed by refreshments and tours. On hand to celebrate with the KLINGER RCM USA and KLINGER Thermoseal teams were Gabriel Williams (Managing Director of KLINGER Switzerland), Daniel Schibli (CEO of the KLINGER Group), Yilin Yuan (President of Sinyuan Industry Group), and Jingjing Qiu (General Manager of KLINGER RCM Ningbo). While it was a priority to recognize all the international team members that contributed to the process, it was also important to involve local support: City of Sidney officials, members of the local Chamber of Commerce, suppliers, and customers were also invited to the event.

Preparing to give back

The KLINGER RCM USA team is ramping up production in phases, performing trial runs to ensure that each step of this specialized process performs flawlessly. As their process improves, eventually KLINGER RCM USA hopes to share their own lessons with the other RCM locations. This is not only beneficial to the group, but to customers as well. As David points out, "We've been doing a lot to globalize operations, so when material comes off the machine in Asia, Europe, or the United States, it's exactly the same. It's a big hurdle in the automotive industry. If it's not exactly the same, the customer has to retest it, and retesting is very, very expensive. Making sure you have things that are the same globally is a tremendous benefit."

"We've been doing a lot to globalize operations, so when material comes off the machine in Asia, Europe, or the United States, it's exactly the same. It's a big hurdle in the automotive industry. If it's not exactly the same, the customer has to retest it, and retesting is very, very expensive. Making sure you have things that are the same globally is a tremendous benefit."

David Schweiger, General Manager of KLINGER RCM USA

Santiago de Chile/Chile

Digging deeper

KLINGER expands its Latin American presence with a new location in Chile.

With more than 20 percent of the world's copper reserves and more than 30 percent of the world's lithium, Chile is considered a global leader in the mining industry. This country is rich in minerals, boasting substantial deposits of gold, silver, and iron ore in the Atacama Desert and surrounding areas. It's also a top producer of other valued exports, including iodine, molybdenum, salt, and potash. What's more, the geography and climate of Chile are ideal for alternative energy sources such as geothermal, solar, and wind. The country is heavily invested in converting to green energy, with ambitious plans to reach net zero carbon emissions by 2050.

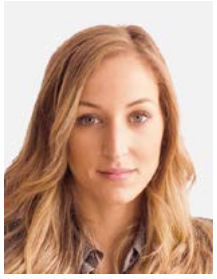
Increasing local ties

Currently doing robust business in Argentina, Brazil, Mexico, and Peru, KLINGER has cultivated a deep understanding of the Latin American market. With native employees ready to tackle the intricacies of regional business needs, Chile's steady economic growth has proven that now is the time for expansion into the country. To that end, KLINGER Chile officially opened for business on July 9, 2024. Elena Rodríguez Hernández, Operational Controller of KLINGER Peru, explains, "Because we developed KLINGER Peru first and learned how the market works, we were now able to form KLINGER Chile and extend our know-how." According to Rafael Sosa, General Manager of KLINGER Peru, who will lead the effort, "We will roll out KLINGER's proven solution provider strategy in industries such as mining, while positioning the KLINGER brand in the upcoming P2X Green Deal hand in hand with our parent company KLINGER Spain."

The right products at the right time

Chile's growth in the mining and energy sectors comes at an opportune time for KLINGER, whose sealing solutions, valves, and related instrumentation have become the first choice in several Latin American markets. Manuel Tabasco, Managing Director of KLINGER Spain, says, "Industry segmentation for specialization is key for the KLINGER Group as a solution provider. Our in-depth knowledge of the target industries and their related processes and applications enables us to offer a seamless and comprehensive best-in-class product portfolio of valves, seals, instrumentation, and associated products. In addition, we see good opportunities to serve our existing customer base in another country in Latin America and to expand our business model in a promising market."

> "Because we developed KLINGER Peru first and learned how the market works, we were now able to form KLINGER Chile and extend our know-how."
>
> **Elena Rodríguez Hernández, Operational Controller of KLINGER Peru**



Elena Rodríguez Hernández, Operational Controller of KLINGER Peru

Rafael Sosa, General Manager of KLINGER Peru and KLINGER Chile

Manuel Tabasco, Managing Director of KLINGER Spain

General Manager Rungrudee Anusatsiri accepted the award from a PTTEP representative.

Rayong/Thailand

Link by link: an award-winning supply chain

KLINGER Thailand is the sole recipient of PTTEP's 2024 Platinum Award

In 2024, KLINGER Thailand was recognized as the only Platinum Award recipient at PTTEP's 2024 Supplier Performance Excellence Awards. The award criteria encompassed On-Time Delivery, DDR (Damage/Discrepancy Report), and 360-Degree Evaluations. KLINGER Thailand demonstrated its Platinum status during the mid-year review and continued to maintain high-quality services until the final evaluation (year-end) as a Platinum Awarded Supplier.

"It's such an honor to be acknowledged by PTTEP for the consistent effort we put into ensuring top-tier service," said Rungrudee Anusatsiri, General Manager of KLINGER Thailand. "We're incredibly proud of this achievement and even more motivated to raise the bar. Thank you, PTTEP for this recognition – we are truly humbled by the award." Khun Took adds, "In 2025, we'll continue focusing on improving, innovating, and strengthening bonds with our customers and partners."

In recent years, KLINGER has strategically strengthened its supply chain to offer a broader and more diverse range of KLINGER products in Southeast Asia. These efforts have been achieved through:

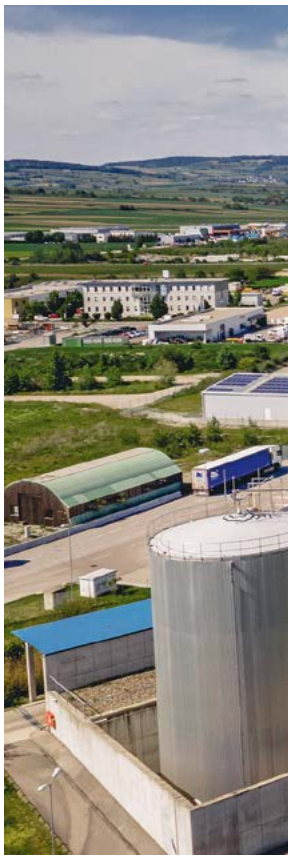
- Direct technical representation
- Local manufacturing capabilities
- Increased localized stock
- Collaboration with like-minded long-standing and new distribution partners.

This award reflects the company's focus, expansion, and ongoing commitment to the Asia-Pacific region, and inspires KLINGER to push boundaries, ensuring it maintains its leading position when it comes to excellence.

About PTTEP

PTT Exploration and Production Limited (PTTEP) is a Thai multinational oil and gas exploration and production company. It conducts business in petroleum exploration, development and production, renewable energy, new forms of energy, and advanced technology, emphasizing greenhouse gas emissions reduction in the move toward a low-carbon and sustainable future. PTTEP operates over 50 petroleum exploration, development, and production projects in more than ten countries across several regions, with the primary focus on Southeast Asia and the Middle East as well as other petroleum-prolific areas displaying investment opportunities.

> "It's such an honor to be acknowledged by PTTEP for the consistent effort we put into ensuring top-tier service."
>
> **Rungrudee Anusatsiri, General Manager of KLINGER Thailand**



Leading EPS granule manufacturer Sunpor uses state-of-the-art technology in its production facilities.

St. Pölten/Austria

Nothing but clean air

KLINGER Gebetsroither gaskets extend the lifespan and cut the maintenance requirements of an air purification system at St. Pölten-based granulate manufacturer Sunpor. They are also capable of withstanding extreme temperatures.

Styrene and pentane should not be inhaled. Dizziness, fatigue, and headaches are just some of the symptoms resulting from direct exposure to these hydrocarbons. Needless to say, these substances, which are used in industrial processes, should not be allowed to enter the environment either. That's why state-of-the-art technology is employed to remove them from the air. The Austrian EPS granulate manufacturer Sunpor shows how it's done – with committed support from KLINGER.

Marko Vidakušić, Sales Executive at KLINGER Gebetsroither

Morris Draxler, Engineer at Sunpor

© Sunpor

The goal: to reduce emissions

The production of EPS (expanded polystyrene) granules, which are used mainly in the construction and packaging industries, generates exhaust air that is contaminated with hydrocarbons, especially styrene and pentane vapor. An RTO system is used to neutralize these vapors before they can enter the environment. RTO stands for Regenerative Thermal Oxidation. This innovative emissions-reducing technology works by heating the exhaust gases to between 800 and 850 °C (1,472–1,562 °F). At this temperature, a chemical reaction takes place that effectively destroys hydrocarbon compounds, rendering them harmless. The generated heat is recovered using specially developed ceramic materials, so that the considerable energy required for these temperatures does not go to waste.

Tough on materials

"A high-tech system like this places tough demands on materials They must be resistant to hydrocarbons, be able to withstand high pressure and temperatures, and be extremely durable. KLINGER products have

© David Schreiber

always lived up to these expectations," says Sunpor engineer Morris Draxler. In terms of availability, service, and expertise, the company relies on its partner in Gumpoldskirchen – most recently for the installation of a modern RTO system to replace an existing one. Marko Vidakušić, Sales Executive at KLINGER Gebetsroither, is also pleased: "We supplied important parts for this project: the Klingersil C-4300, TopChem 2000, and Graphit PSM gaskets. We also supplied valves in various designs – manually operated and part-automated with pneumatic or electric actuators. These were assembled by our team, whereby we had to comply with specifications such as SIL and ATEX."

Working together as equals

Aspects such as tightness, temperature resistance, and durability were decisive for this gasket, explains Morris: "This RTO exhaust air purification system is directly linked to our production, which runs around the clock. A continually operating RTO exhaust air purification system is essential for efficient production. Based on our experience with KLINGER sealing components and their long service life, we know that we rarely need to shut the entire system down for maintenance and repair work." Apart from the reduced maintenance requirements, Sunpor also values KLINGER's customer support: "The cooperation and the excellent support in technical matters are outstanding, both during the project phase and in operation. Prompt, solution-oriented communication, and the handling of any issues that arise makes working with KLINGER Gebetsroither a joy," says Morris.

> "Based on our experience with KLINGER sealing components and their long service life, we know that we rarely need to shut the entire system down for maintenance and repair work."
>
> **Morris Draxler, Engineer at Sunpor**

Did you know...?

- ...that KLINGER Gebetsroither supplied manual and automatically operated Ammtech flue gas dampers in sizes DN150 to DN1400 plus Klingersil C-4300 and ball valves for the new RTO system at Sunpor?
- ...that RTO systems are versatile and can be used in the chemical, pharmaceutical, food, and other sectors, as well as in biogas treatment?
- ...that components such as flue gas dampers, ball valves, and gaskets must be of high quality to ensure the long-term performance and reliability of RTO systems and guarantee uninterrupted, trouble-free operation?
- ...that we come into contact with Sunpor products every day – without realizing it? Be it in the walls of our buildings, in the packaging that protects our new appliances, or in bicycle helmets – EPS, or polystyrene, is everywhere.
- ...that Sunpor is among the seven largest companies in Austria's plastics industry?

Vienna/Austria

The heart of Vienna's district heating system

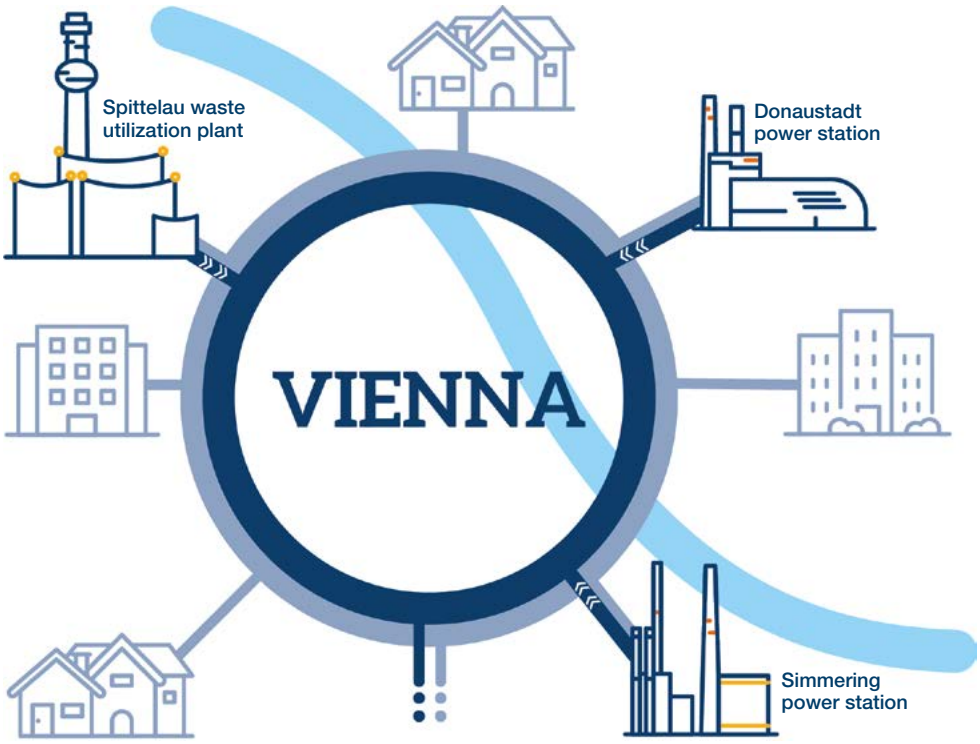
Like a heart, Wien Energie's pumping stations keep water circulating in the network of arteries of Vienna's district heating system. At temperatures of up to 150 °C (302 °F), the water distributes heat throughout the city to keep households and businesses warm.

With the Simmering 2 pumping station (PSI2), Vienna utility company Wien Energie took its latest plant into operation. This modern installation plays a key role in ensuring the efficient, reliable supply of heat through the district heating network of Austria's capital. An addition to the existing infrastructure, it ensures that the heat from the surrounding generation plants is efficiently channeled to Vienna's households and businesses.

A forward-looking project

The new pumping station is located on the site of the Simmering power plant, Vienna's largest district heating generator. "We were faced with the challenge of expanding the capacity of the existing pumping station, which was built in the 1980s to cover the ever increasing demand, while also improving the system's reliability," explains Bernhard Adam, Group Manager for Mechanical

The pumping station's design has space for two additional pumps.



The Simmering power plant is Vienna's largest district heating generator. It is located in the southeast of the city.

> "Through regular maintenance and optimization measures, we ensure that the system is efficient as well as reliable. The quality of the components used plays an important role here. Our collaboration with KLINGER Gebetsroither has proven extremely valuable – both in terms of technical support and product quality."

Bernhard Adam, Group Manager for Mechanical and Process Engineering at Wien Energie

and Process Engineering at Wien Energie and Project Manager for the new pumping station.

Technical tour de force for Vienna

The pumping station was engineered to pump up to 7,500 cubic meters of water per hour through Vienna's district heating network. With two pumps currently installed, it can be expanded by a further two pumps if required. In this full expansion stage, the peak delivery rate is achieved with three pumps, with the fourth providing redundancy. "This ensures that our network can continue to supply Vienna with heat in the event of maintenance work or unexpected outages," says Bernhard.

He highlights the choice of installed valves and gaskets, which are designed for pressure of up to 28.5 bar and temperatures of up to 180 °C (356 °F). "We use combined butterfly/check valves from Zwick, KLINGER TopChem 2000 gaskets, and Ballostar KHA and KHI ball valves, as well as KVN piston valves from KLINGER Fluid Control, which already have a proven track record in district heating systems," says Markus Fuchs, Key

For Bernhard Adam (left) and Markus Fuchs (right), it was a long road to the new pumping station. Wien Energie's public tenders included detailed service specifications, which KLINGER Gebetsroither's offer fulfilled in every respect.

Account Manager and Product Manager for valves at KLINGER Gebetsroither. These valves ensure the system's safe, dependable operation by reliably shutting off and isolating pipe sections. As well as being a safety feature, they allow sections of pipework to be isolated for maintenance tasks.

Sustainable and fit for the future

With its PSI2, Wien Energie is also making a valuable contribution to sustainability: the efficient distribution of heat optimizes energy consumption, which in turn reduces CO_2 emissions. "Through regular maintenance and optimization measures, we ensure that the system is efficient as well as reliable. The quality of the components used plays an important role here. Our collaboration with KLINGER Gebetsroither has proven extremely valuable – both in terms of technical support and product quality," says Bernhard.

At Wien Energie, reliability is key

The new district heating pumping station will ensure a reliable heat supply to even the most remote districts of Vienna. For Bernhard and his team, the construction project that lasted almost three years represents an important step: "Our focus is on maximizing the availability and reliability of energy generation and supply throughout Vienna."

KLINGER components at a glance

» Ballostar KHA and KHI ball valves from KLINGER Fluid Control up to DN800
» Zwick butterfly gate valves with AUMA gearboxes and Schiebel electric actuators up to DN500
» KVN piston valves up to DN80 and MABI manometer cocks from KLINGER Fluid Control

Did you know...?

…that a retrofit Ballostar KHI DN800 ball valve was reinstalled after extensive servicing?
…that Wien Energie already supplies 460,000 households with heat through its district heating network?
…that the use of district heating saves around 1.5 million tons of CO_2 per year?
…that district heating is to be produced from 100 percent renewable energy by 2040?

Spot the ball valves: how many of them are in this section of pipework at Wien Energie's Simmering power plant?

“EIT sees itself as a low-volume supplier whose solutions contribute to improving the performance and safety of industrial plants,” says Wilfried Ernst, Managing Director of Ernst Industrietechnik.

Wallenhorst/Germany

A case for the “problem solver”

Long-term customer relationships are not uncommon at KLINGER. Our customers see us as problem solvers that bring extensive experience and outstanding quality to the table. One such customer is Ernst Industrietechnik (EIT), who asked KLINGER Bartsch for advice when one of its own customers was faced with a challenge.

“Business relationships cannot be expressed merely in facts and figures,” says Martin Einfeldt, Managing Director of KLINGER Bartsch. Although quality can be measured, for example in terms of a product’s functionality and durability, “this is only the starting point. Maintaining good communication so as to be perceived by the customer as a problem solver is just as important,” says Martin. The example of Ernst Industrietechnik (EIT) shows that this focus on specific customer needs is what ultimately makes for a good business relationship.

KLINGER Bartsch has been supplying various graphite gaskets to the Germany-based specialist retailer for sealing connections and specialty gaskets since 1996. Though the individual advice that goes with many orders as a matter of course is not itemized on the delivery notes, it is often what makes all the difference.

A case for the detectives

Wilfried Ernst, Managing Director of EIT, agrees, describing KLINGER Bartsch’s problem-solving expertise using a specific example. A customer of EIT needed to replace a gasket that was not supplied by KLINGER Bartsch. Looking back, Wilfried says: “People often don’t give their suppliers the recognition they deserve,” and goes on to describe a situation he encountered in his work: “Our company offers solutions for static tightness issues. In one such case, I was asked by a valve distributor whether a stuffing box gland was not too low above the housing. The distance was already at the limit, but I looked at whether the gland could still be tightened any further. Unfortunately, this was not the case, so we unpacked the stuffing box to analyze the problem,” says Wilfried. The specified number of graphite rings was removed and “we were able to pinpoint the problem to the installation density of the graphite rings, which was much too low.”

A “long-standing, successful collaboration without alternative”

Based on the customer’s specific requirements, EIT therefore recommended packings with a higher density. KLINGER Bartsch produced these to order, and the solution worked as planned. Ernst describes the collaboration with KLINGER Bartsch as “long-standing, successful, and without alternative”. He is certain that “the problem would never have occurred in the first place with KLINGER Bartsch graphite rings, as the dimensional accuracy and density of every batch are flawless.” His trust is based on a consistently positive experience over many years: “So for us, there really is no alternative, as every quality issue costs money and, above all, reputation,” says Wilfried.

A stuffing box provides a seal against liquids or gases between rotating shafts or moving rods and a housing, as shown in the KVN piston valve model of KLINGER Fluid Control.

Did you know...?

- …that a stuffing box provides a seal against liquids or gases between rotating shafts or moving rods and a housing?
- …that a stuffing box consists of a gland packing and a stuffing box gland and is compressed by means of threads, screws, or spring force?
- …that graphite is a natural form of pure carbon and has outstanding thermal conductivity? It also withstands extreme temperatures, is highly resistant to chemicals, and is electrically conductive.

Jorge Chávez International Airport in Lima, Peru

Lima/Peru

Now arriving

With custom valves from KLINGER Peru, Jorge Chávez International Airport will double its capacity by the end of 2025.

As Peru's main international and domestic airport, Jorge Chávez International is constantly evolving to keep pace with the region's growing population. Named after the renowned Peruvian aviator, this facility opened its doors in the 1960s as a replacement for the smaller Limatambo Airport. Consistent upgrades and renovations over the years have allowed the facility to accommodate increasing traffic and meet international standards. In 2000, the airport was placed under the management of a consortium of Peruvian and foreign companies. The group launched an ambitious multi-year expansion project and reached out to KLINGER Peru for valve assistance, resulting in a novel collaboration and a brand-new product.

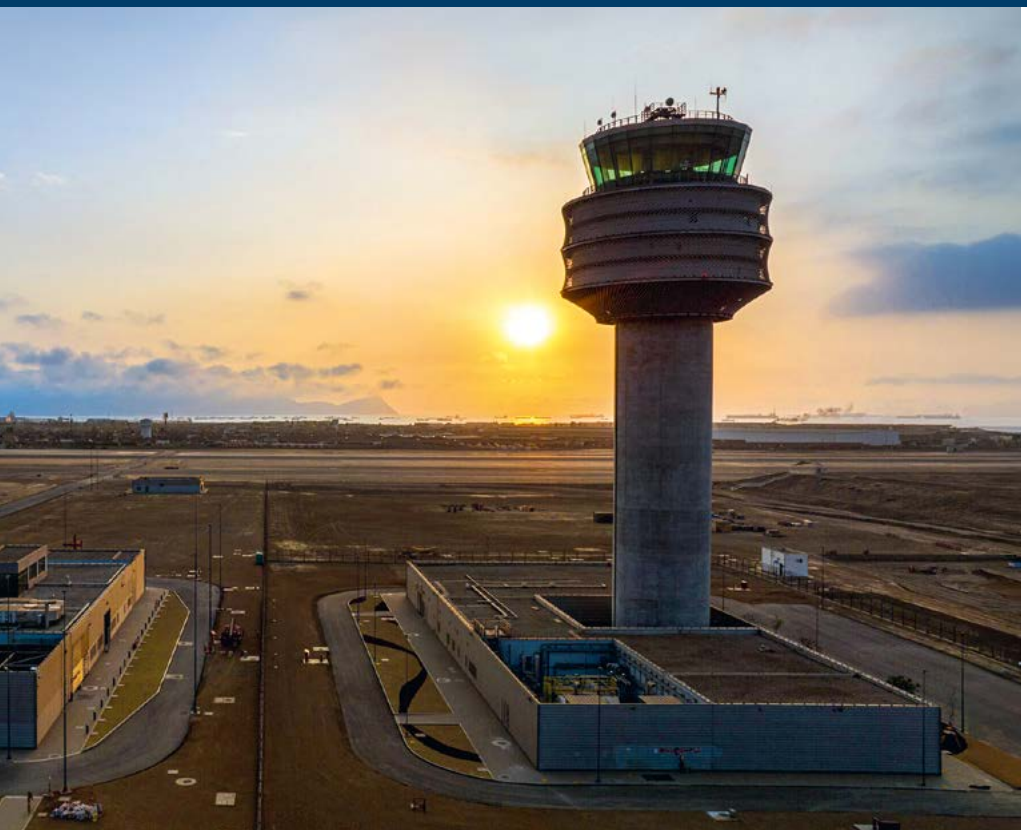
KLINGER Peru is proud to have supplied valves with electric actuators for the expansion of Lima Airport.

A new challenge

According to Aldo Bobbio Baglietto, Sales Engineer & Project Manager at KLINGER Peru, the team was eager for the challenge. "This kind of project was totally new," he says, "but KLINGER Peru used all our resources." Working hand in hand with high-level companies led the team to develop a custom double block and bleed valve, with specifications tailor made. A total of 60 of these custom valves will supply circulation and fuel storage in the first phase of the airport expansion, a station and terminals used for cargo aircraft. The end result of the project will provide twice the internal floor space at 900 hectares, with Peruvian authorities estimating that passengers per

> "Right now in the airport there are approximately 5,000 employees or indirect contractors; it's a very big project here. With this change, we are poised to become a hub in the region for a lot of providers."

Monica Elizabeth Basauri Vera, Purchasing Manager and Project Activator for Aeropuerto Jorge Chávez



year will double from 18 million to 36 million by the end of 2025.

Expanding reach

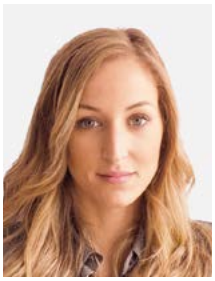
While meeting the needs of increased passenger traffic is an obvious concern even to the casual observer, increased industrial capacity is also a major factor in expansion plans. KLINGER's contributions to the project will also improve and expand the fire protection system, a key factor in meeting the needs of cargo carriers. This change, combined with a second runway and more than 10 kilometers of new taxiways, will allow the airport to service a much larger scope of aircraft and more major carriers. "These are cargo planes with a high capacity," explains Elena Rodríguez Hernández, Operational Controller at KLINGER Peru. "It's very important not only for tourism on passenger transportation, but also for the commercial capacity of the country." Because these valves are critical to safety and asset protection, robust materials ensure a long service life, as do weekly inspections and annual maintenance.

Not only will this expansion bring more resources and opportunities to the area, but the work itself has provided training and employment for many. Monica Elizabeth Basauri Vera, Purchasing Manager and Project Activator for Aeropuerto Jorge Chávez, estimates "Right now in the airport there are approximately 5,000 employees or indirect contractors; it's a very big project here. With this change, we are poised to become a hub in the region for a lot of providers."

The KLINGER Peru team is similarly poised to take on more custom work after this success. Not only were they able to meet the technical and time restraints of the project, but refining their in-house assembly process allowed them to deliver the valves ready to use. Aldo says, "It was a huge challenge for KLINGER Peru, but the results were so fulfilling and empowering for the whole team."

> "It's very important not only for tourism on passenger transportation, but also for the commercial capacity of the country."
>
> **Elena Rodríguez Hernández, Operational Controller at KLINGER Peru**

Aldo Bobbio Baglietto, Sales Engineer & Project Manager at KLINGER Peru



Elena Rodríguez Hernández, Operational Controller at KLINGER Peru

Monica Elizabeth Basauri Vera, Purchasing Manager and Project Activator for Aeropuerto Jorge Chávez

Tiger Creek runs alongside the CMFSR site.

Buenos Aires/Argentina

Success with every ounce

KLINGER Argentina's on-site valve maintenance ensures smooth operations at San Rafael's uranium complex, enhancing energy sovereignty and environmental protection.

In the picturesque department of San Rafael, located in the south of Mendoza province at the foot of the majestic Andes Mountains in Argentina, fruit and vegetables are cultivated, and viticulture and olive farming stand out. Besides being a major tourist destination, this region hosts one of Argentina's largest uranium reserves, located in Sierra Pintada, where the National Atomic Energy Commission (CNEA) operates the San Rafael Industrial Mining Complex (CMFSR).

Power play

In Argentina, approximately ten percent of the electricity produced comes from nuclear power plants that use natural uranium, such as Atucha I, II, and Embalse. Currently, uranium is imported from Kazakhstan. The CMFSR plant has begun mitigating passive environmental impacts by processing uranium-containing waste to recover it and send it to the uranium dioxide conversion plant of Dioxitek, located in the city of Córdoba. In addition to contributing to environmental remediation, this process represents an important step toward the country's energy sovereignty.

In this context, a critical need arose: the supply of spare parts for the valves installed in the complex, along with their repair and maintenance, which are necessary for the operation of the uranium separation and concentration line, part of the water and solid waste remediation process.

Valves to the rescue

The National Atomic Energy Commission contacted KLINGER Argentina to address this need. The team, composed of valve maintenance specialists and led by the Sales Manager Mining Projects, Reinaldo Luzco Abalos, worked closely with CNEA personnel, including Vanesa García, Head of the Plant Division, and Oscar Comito, Deputy Manager of the Mining Complex.

Valves play a crucial role in the functioning of the uranium separation and concentration line, which is an integral part of the water and solid waste remediation process.

> During our visit, a comprehensive survey of the facilities was conducted, identifying diaphragm valves in various lines carrying acidic solutions. Based on this analysis, we provided advice on the most suitable solutions for the repair and maintenance of the valves, ensuring the plant's prompt commissioning."

Reinaldo Luzco Abalos, Sales Manager Mining Projects at KLINGER Argentina

"During our visit, a comprehensive survey of the facilities was conducted, identifying diaphragm valves in various lines carrying acidic solutions. Based on this analysis, we provided advice on the most suitable solutions for the repair and maintenance of the valves, ensuring the plant's prompt commissioning," says Reinaldo.

On-site solutions

Through a public bidding process, KLINGER Argentina was selected to execute this project. Since the valves could not be transported to KLINGER's plant in Garín, the work was carried out on site in San Rafael. KLINGER Argentina's technical team was present throughout the process, ensuring the quality of the work and maintaining close collaboration with the CMFSR.

More than 124 diaphragm valves, exclusively distributed by KLINGER Argentina, were serviced. The tasks included disassembly, diaphragm and actuator replacement, air tightness testing, and final assembly. During the process, damage to the valve liners was identified, which required the use of elastomer (EPDM) gaskets, suggested by KLINGER Argentina's technical team.

Reinaldo Luzco Abalos, Sales Manager Mining Projects at KLINGER Argentina

Ready to flow

The project concluded with the delivery of technical data sheets for each serviced valve and a training session for CMFSR personnel on the proper use and preventive maintenance of diaphragm valves, conducted by valve specialist Mauricio Rodríguez from KLINGER Argentina.

The project was a resounding success, ensuring that the uranium separation line is ready for commissioning, which will be determined by CNEA. This collaboration reinforces KLINGER Argentina's commitment to offering high-value solutions, contributing to both the country's energy development and environmental protection.

Over 120 diaphragm valves were serviced under Mauricio's (1st from right) supervision.

Mauricio (2nd from left) is happy to pass on his expertise to the employees of the San Rafael Industrial Mining Complex.

São Paulo/Brazil

Guardians of the Blue Amazon

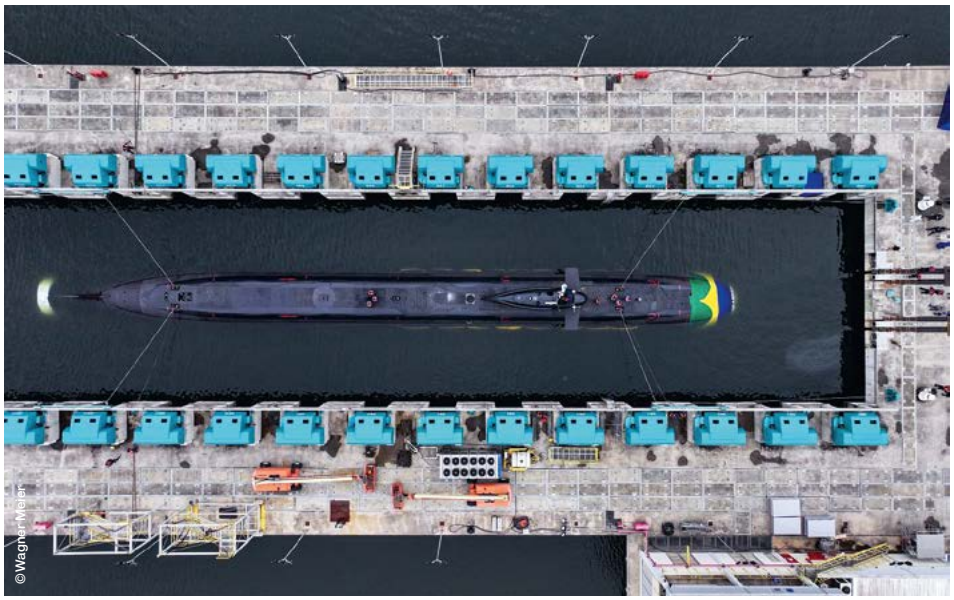
Brazil's coastline is more than just a beautiful backdrop; it's a strategic lifeline. But what happens when innovation meets the deep blue? A three-year journey led to a breakthrough moment.

> "KLINGER Brazil once again demonstrates its level of quality, commitment, and reliability."
>
> **Luciano Bussi, Sales Manager at KLINGER Brazil**

Since the arrival of the Portuguese in Brazil more than 500 years ago, its coastline has played a vital role in the South American country's economy, not just for tourism but also for activities like fishing, maritime transport, and oil extraction. Stretching over 7,000 kilometers, it ranks among the world's longest coastlines, giving Brazil a strategic edge in development. Central to this maritime strength is the Brazilian Navy, which, beyond defending national waters, safeguards the Exclusive Economic Zone (EEZ) and protects the biodiversity of the "Blue Amazon," ensuring the security and sustainability of these critical resources.

Shoring up naval innovation

For the success of operations conducted by the Brazilian Navy, reliable, cutting-edge technology supplies are essential. That's why strict quality parameters are set for their procurement. In 2021, as Brazil started sourcing suppliers for the production of nuclear-powered submarines using French Naval Group technology, KLINGER Brazil was selected as a key local supplier for



Inauguration of a submarine by the Brazilian Navy.

From left to right: Luciano Bussi (KLINGER Brazil), Gilles Laurent (Naval Group, France), Vincent Miriel (Naval Group, France), Sandra Silva (KLINGER Brazil), and Thiago Gomes (Naval Group, Brazil) with the certification from Naval Group.

Medal presented by the Brazilian Navy to Luciano Bussi, Sales Manager at KLINGER Brazil.

gaskets, supporting the country's goal to manufacture submarines domestically rather than importing them. KLINGER Brazil is known in the market and a reference for this type of application was then chosen: Klingersil C-4430.

Sailing through certification

The certification journey for KLINGER Brazil began with a detailed audit by the Naval Group. Sandra Silva, KLINGER Brazil's Quality Manager, recalls the start of a "meticulous three-year process filled with audits, emails, and calls. This close collaboration ensured compliance at every step, ultimately securing our progress and success."

KLINGER Brazil's expertise in supplying gasket materials for nuclear plants was essential throughout the project with the Naval Group. Vinicius Tomiati, the specialist in KLINGER Brazil's sealing division, noted that this prior experience provided an edge in meeting the Naval Group's stringent requirements: "During rigorous testing, Klingersil C-4430 not only met but exceeded expectations, demonstrating its versatility and exceptional stress retention, strengthening its reputation for outstanding performance," he says. The certification process also coincided with a major modernization phase at KLINGER Brazil.

Certified for national security

In February 2024, KLINGER Brazil achieved a significant milestone, earning the Naval Group's technical capability certificate to become an approved supplier for the Brazilian Navy. Sales Manager Luciano Bussi expressed pride in this contribution: "It is gratifying to know that we are contributing to the success of our country's defense. KLINGER Brazil once again demonstrates its level of quality, commitment, and reliability."

Did you know...?

- ...that the Brazilian Navy emerged in the context of Brazil's independence in 1822 and was of extreme importance for the movement's consolidation?
- ...that June 11 is celebrated as Brazilian Navy Day? The date was chosen in reference to the Naval Battle of Riachuelo, fought on June 11, 1865.
- ...that the Blue Amazon, as the Brazilian coast is called, is responsible for supplying 95 percent of Brazil's oil, 80 percent of its natural gas, and 45 percent of its fish?

> "During rigorous testing, Klingersil C-4430 not only met but exceeded expectations, demonstrating its versatility and exceptional stress retention, strengthening its reputation for outstanding performance."
>
> **Vinicius Tomiati, Product Specialst at KLINGER Brazil**

SUSTAINABILITY COME TRUE

KLINGER Brazil's Amanda Carvalho walks an intriguing career path. Page 40

KLINGER Dichtungstechnik
sets a new sustainable standard with Gaja.
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KLINGER Holding's
ESG update explained by two in-house experts.
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KLINGER Fluid Control
profits from a predicted boom in district heating.
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KLINGER Holding
has a new solar power plant in operation.
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KLINGER Portugal
delivers innovation to the textile industry.
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Gumpoldskirchen/Austria

Sealing a sustainable future

Since introducing an environmentally friendly solvent in the production of sealing sheets, KLINGER Dichtungstechnik has been saving around 100 tons of carbon dioxide annually. The switch to bioethanol also benefits the local economy.

Industries across the globe are striving to minimize their environmental footprint, and KLINGER Dichtungstechnik is leading the way with a revolutionary gasket that sets a new standard for sustainability.

In today's world, sustainability is not just a buzzword; it's a necessity. With its newly developed product, KLINGER Dichtungstechnik has made it possible. KLINGER Gaja is not just another universally usable gasket sheet material. Just as Gaia – the Greek goddess who personifies the Earth – is the mother of all life, KLINGER Gaja represents a commitment to nurturing and protecting our planet for future generations.

Uncompromised performance

KLINGER Gaja is a fiber-reinforced gasket material that was designed to minimize the environmental impact during production and application. This innovative gasket sheet material is manufactured using sustainable processes and ingredients:

- Blend of renewable fibers (instead of synthetic fibers)
- Elastomers like natural rubber
- Untreated mineral fillers such as bio-circular silica, which is derived from rice husks and is therefore particularly eco-friendly
- NO plasticizers, mineral oils, colorants, or anti-aging agents

© Philip/stock.adobe.com

KLINGER Gaja is made from natural materials.

What impact does KLINGER Gaja have on the environmental footprint?

- » significant contribution to reducing the environmental footprint
- » utilizes untreated fillers with a low Product Carbon Footprint (PCF)
- » incorporates renewable raw materials
- » reduces CO_2 emissions by approximately 25 percent
- » sustainable materials and efficient production processes

Stephan Piringer is also the company's HSE Manager and, as such, concerned about sustainability.

This ensures that it contributes to the preservation of our planet without compromising on quality or reliability.

The advantages of KLINGER Gaja are manifold. It offers superior sealing properties and ensures applicability in a variety of industries. From chemical processing to power generation, KLINGER Gaja provides a reliable solution that industries can depend on. In addition, its sustainable manufacturing process helps customers to achieve their operational goals while also meeting their environmental objectives.

Redefining standards

"We wanted to create something that sets a benchmark for sustainability," says Stephan Piringer, Head of Product Development at KLINGER Dichtungstechnik. He adds, "Until now, gaskets were primarily designed to solve a technical problem. With KLINGER Gaja, we took a different approach and asked ourselves how we could make proven solutions even more environmentally friendly" – mission accomplished.

> "We wanted to create something that sets a benchmark for sustainability."

Stephan Piringer, Head of Product Development at KLINGER Dichtungstechnik

The deliberate avoidance of any color pigments gives KLINGER Gaja a natural color.

Gumpoldskirchen/Austria

"We save money twice over"

ESG update: an interview with Yusuf Avci and Ines Weikl, the KLINGER Group's sustainability team.

Mr. Avci, you were on the road a great deal last year as an ESG ambassador. How many stops did your team make in 2024?

Yusuf Avci: Of the 64 legal entities in the KLINGER Group, 54 must report ESG data to KLINGER Holding. This data will serve as the basis for a Group-wide sustainability report in 2025. Last year, I paid 44 subsidiaries a visit in person. What I noticed was that those companies that I paid a personal visit to had a better response rate. This shows the importance of face-to-face contact.

What lessons for the future have you learned from your visits to the international subsidiaries?

Yusuf: Our main takeaway is that around ten of the companies are on a very good footing. Our aim now is to further progress energy efficiency and focus even more strongly on employee satisfaction. But we also saw that some of the companies still have some catching up to do.

What initiatives of the ESG managers at the sites have impressed you in particular?

Yusuf: KLINGER UK has greatly impressed me. The ESG manager there presented an excellent data collection. Also KLINGER Westad and KLINGER Finland, who have set up their own energy management system, which records energy consumption and calculates its share of EBIT.

What arguments work best to convince employees that ESG is a good thing?

Yusuf: We need key figures to know where we can apply the lever to improve resource efficiency. The best example of this is packaging materials: using these twice reduces both purchasing costs and disposal volumes. So you save money twice over – and it's more environmentally friendly, too!

Ines Weikl: Customers are also increasingly demanding compliance with ESG criteria. If we don't comply, we will simply drop out of their supplier list.

What steps will you take in 2025?

Ines: This year, we're planning to implement the ESG software tool. This will be connected via our financial reporting platform, which is already up and running. The big challenge here is collecting the data, which must happen directly at the subsidiaries. From 2026, we are required by law to report on each previous year.

Yusuf Avci and Ines Weikl manage the ESG agenda at KLINGER. "The staff at our subsidiaries are very much interested in sustainability issues and support ESG activities," says Yusuf.

12/2024

KLINGER trusted. worldwide.

SUSTAINABILITY STATEMENT #2

Building up sustainability step by step

The priorities for the next 12 months

- CSRD - REPORTING
- GHG - ACCOUNTING
- CBAM - REGULATION
- EUDR - REGULATION

Promoting transparency and accountability in all KLINGER companies

Q4 2024

CBAM (Carbon Border Adjustment Mechanism)
establish and review an internal regulation

EUDR (European Deforestation Regulation)
investigate and initiate necessary measures

CSDDD (Corporate Sustainability Due Diligence Directive)
set up timetable according to OECD Due Diligence Guidance

Q1 2025

Start data collecting with the sustainability software tool
CSRD 2026 according to ESRS

Q3 2025

Establish CCF (Corporate Carbon Footprint) Scopes 1, 2, 3

GHG Accounting → ESRS-Compliant Target → Decarbonization Roadmap → Transition plan → Risks & Opportunities

KLINGER subsidiaries focus on:

ecovadis · INTEGRITY NEXT · REACH COMPLIANT · ISO 50001 · ENERGY EFFICIENCY · ecoinvent

São Paulo/Brazil

Breaking down barriers in engineering

From apprentice to an engineering degree. Amanda Carvalho's journey at KLINGER Brazil exemplifies resilience and ambition in a male-dominated field.

Amanda's journey is a testament to ambition and curiosity. From a 16-year-old apprentice to an Inside Sales Representative, her story shows how passion and perseverance can carve out a meaningful place in engineering, breaking down barriers and inspiring others.

Amanda Carvalho, Inside Sales Representative at KLINGER Brazil

The many hats of an engineer

Her passion for engineering began during her apprenticeship in the quality department at GEA do Brasil. Observing an engineer solve technical problems lit a spark in her, inspiring her to pursue a degree in mechanical engineering in 2016. This journey led her through positions at Bosch Rexroth and finally, in 2022, to KLINGER Brazil. Amanda's career has spanned quality control to technical sales, demonstrating the broad scope of engineering. "Initially, what attracted me most was the ability to solve problems and find effective solutions," she explains. This versatility has shaped her skills in her current sales role at KLINGER Brazil.

Women breaking through

Over the years, Amanda has noticed more women taking on engineering roles and excelling. "I've seen more women interested in and succeeding in engineering," she says, pointing to growing initiatives to promote women's inclusion. Still, she believes that fair hiring policies and an inclusive work environment are essential for bridging the gender gap.

For Amanda, mentorship and community among women are key for fostering growth and inclusion. "Don't be a competitor, be a reference," she notes. Having received valuable mentorship herself early in her career,

Amanda performs a detailed product inspection for reliable deliveries.

Amanda understands the importance of support in paving the way for future generations.

Balancing act

Balancing her career and private life, especially raising children, is a challenge. “Work and family life complement each other,” Amanda reflects. She sees her professional accomplishments and family time as interrelated, each boosting her well-being. Amanda’s advice to young women considering engineering is: “Believe in your potential and do what you love. Strive to be better every day. Always seek to learn, embrace challenges, and don’t be afraid to make mistakes.” Continuous learning and setting realistic goals keep her motivated in this dynamic field.

Why KLINGER?

She remains optimistic about her future in engineering. Amanda aims to continue her studies to keep up to date with innovations and trends. “The future for women in engineering is very promising,” Amanda asserts. As more women enter the profession, she sees a future enriched by diversity and new achievements. And why did she choose KLINGER as an employer in the first place? “For the culture and supportive environment. Ever since I was young, I had heard about KLINGER as an excellent company,” she says. Today, she appreciates the growth opportunities, employee development, and collaborative workplace.

Amanda’s journey stands as a shining example of the resilience, passion, and the potential of women in engineering. Her story serves not only as an inspiration to young women but also as a reminder of the power of inclusion and mentorship in shaping the future of engineering.

> “Believe in your potential and do what you love. Strive to be better every day. Always seek to learn, embrace challenges, and don’t be afraid to make mistakes.”
>
> **Amanda Carvalho,**
> **Inside Sales Representative**
> **at KLINGER Brazil**

Jenny Liu studied finance and statistics at the University of Toronto.

Taichung City/Taiwan

Bridging the gap

Born in Taiwan and educated in Canada, Jenny Liu has had plenty of practice in finding common ground.

It seems appropriate that a Director of Business Development has a cosmopolitan background, and Jenny Liu certainly fits that description. With her childhood spent in Taiwan alongside grandparents from China, she was taught early on to embrace and celebrate cultural differences. At age 13, she immigrated to Toronto, where she stayed through college. After majoring in finance and statistics at the University of Toronto, she began work at the Royal Bank of Canada. Jenny credits the heavily regulated finance sector for her skill with precision work, saying it's "good to learn a very systemic approach to things." This knack for detail has served her well as the Director of Business Development at KLINGER Die Erste.

A notable first impression

While Die Erste began a joint venture with KLINGER in 2021, the companies had interacted for some time before that. Jenny remembers well her first meeting with KLINGER CEO Daniel Schibli in Shanghai during 2019. "He was excited about a seminar he had just attended by a Nobel Prize winner," she recalls. "The presenter shared evidence that despite our differences, everyone on Earth is actually 99.8 percent alike. That made quite an impression. It strengthened my belief that we as human beings have more in common than we think."

Despite her rigorous education, Jenny had to put in additional work to develop proficiency in the valve industry. "I didn't have an

engineering background, so the beginning was hard," she shares. "There were many nights I picked up standards and product specifications to study and understand. Customers had problems that they needed solved, and I needed to find solutions. So with that drive, the experience accumulated." This urge to embrace continuous learning has never faded, as Jenny travels around the globe and collaborates with subject experts across all markets. It has become a calling for her, that patching together of various abilities to create a seamless whole of expertise. "I feel both my strength and my mission was to bridge the gap between the West and the East in the supply chain, and to fill in the gap between sales and product engineering," she explains.

> "It's an advantage to have women in engineering. If you have the mathematical background, if you have the knowledge, if you are able to see the details, and also be considerate of the other person's feelings."
>
> **Jenny Liu, Director of Business Development at KLINGER Die Erste**

Finding balance

As Jenny discusses the nuances of international business, the topic of empathy comes up repeatedly. Her leadership role frequently finds her balancing not only differing skill sets but also differing cultural perspectives. Acknowledging both sides through active listening is key, demonstrating to both the customer and to her direct reports that the challenges experienced by both sides are valid and will be addressed. "Empathy helps us build deeper trust in complex international business settings," she says. "It's an advantage to have women in engineering. If you have the mathematical background, if you have the knowledge, if you are able to see the details, and also be considerate of the other person's feelings."

> "Don't set any boundaries for yourself – remove the boundary when you're looking for possibilities."
>
> **Jenny Liu, Director of Business Development at KLINGER Die Erste**

This unconventional path has served Jenny well, offering her a breadth of experience across a variety of academic approaches and professional mindsets. Furthermore, her bicultural foundations provide even more agility when building consensus and creating connections. When asked how she would advise women entering engineering, it is perhaps no surprise that Jenny points to a path reminiscent of her own journey: "Don't set any boundaries for yourself – remove the boundary when you're looking for possibilities. Try everything that you want to try, because we only live once. Don't regret doing something, but do worry about not doing it. Every path traveled provides nourishment."

Gumpoldskirchen/Austria

A strong partnership

The story of Benjamin Perez, a passionate student of industrial engineering who is bridging the gap between education and real-world experience through an innovative exchange program, exemplifies the mutual benefits of international collaboration in industrial engineering.

> “It’s all about improving the work process to benefit everyone in the long run.”
>
> **Benjamin Perez, Exchange Student**

In the quiet town of Gumpoldskirchen, Austria, a young French student is making waves in the world of industrial engineering. In the summer of 2024, Benjamin Perez, a student from Toulouse, completed a 13-week internship at KLINGER Dichtungstechnik, the leading company in the field of gasket technology. But this isn’t just any internship – Benjamin is part of a unique exchange program between KLINGER Dichtungstechnik and Groupe Efire, a long-standing sales partner in France. This program not only strengthens the relationship between the two companies but also provides a wealth of practical experience for students like Benjamin.

Benjamin is no stranger to the hands-on learning approach. As part of his industrial engineering studies at the National Engineering School of Chemical and Technological Arts (ENSIACET) in Toulouse, France, he alternates one month of full-time work at Groupe Efire with one month of classroom study. This method, known in France as “alternance”, is designed to ensure that students gain both theoretical knowledge and practical experience. But when it came time to choose between a semester abroad at a university or a 13-week internship at a manufacturing company, Benjamin opted for the latter. His decision was driven by a desire to immerse himself in the real challenges of the industry.

Diving into production processes

At KLINGER Dichtungstechnik, Benjamin’s main task was to analyze the efficiency of the old and new printing and cutting machines. His findings? The new system is much faster. Hence, handling is easier for the employees and the cutting and printing capacities

From France to Austria – Benjamin, an exchange student at KLINGER Dichtungstechnik, is gaining invaluable experience to take back to Groupe Efire.

have been significantly increased. As Benjamin puts it, “It’s all about improving the work process to benefit everyone in the long run.”

His work at KLINGER Dichtungstechnik is more than just crunching numbers. Benjamin has found the hands-on experience on the shop floor to be invaluable. “Engineers should not stay in the office; they should see firsthand what is done in the field and get to know ‘the real life’, the production life,” he says. This philosophy drives his day-to-day activities, where he works closely with both the production team and the Sales Director Kurt Bussecker to gain a comprehensive understanding of the entire process.

Expanding skills across borders

Benjamin’s time at KLINGER Dichtungstechnik isn’t just beneficial to the host company; it also provides him with insights that he can take back to Groupe Efire. While working in France, he is involved in industrial projects such as the reorganization of the warehouse to streamline logistics. The experience he gains in Austria has also sparked ideas that he could implement in future projects at Groupe Efire. The exchange program is thus a two-way street of knowledge and innovation.

> “Engineers should not stay in the office; they should see firsthand what is done in the field and get to know ‘the real life’, the production life.”
>
> **Benjamin Perez, Exchange Student**

The partnership between KLINGER Dichtungstechnik and Groupe Efire is a shining example of how international cooperation can foster not only business relationships, but also the growth of young talent. For students like Benjamin Perez, it provides a unique opportunity to bridge the gap between education and the manufacturing world, preparing them for a future where they can truly make a difference.

As part of his project at KLINGER Dichtungstechnik, Benjamin Perez is analyzing the production process of gasket sheets.

Normally, the area is a strategic traffic point with a crossroads for the La Défense district. Not so when the valves are installed.

Paris/France

KLINGER valves power La Défense

KLINGER Fluid Control ball valves are key to La Défense's energy upgrade, increasing efficiency and sustainability.

Idex La Défense, the operator of the district heating and cooling network for Europe's largest business district, La Défense in Paris, has embarked on a major upgrade to improve its energy infrastructure. With the construction of Metro Line 15 for the Grand Paris Express, Idex needed to relocate and expand the diameter of its pipes to improve network performance and serve a growing customer base. Key to the project are valves supplied by KLINGER Fluid Control, which were meticulously tested at the company's facility in Gumpoldskirchen, Austria, to ensure they met stringent specifications for safety, reliability, and durability.

Bertrand Ory knows best what valves are needed by customers in France.

For the new Area Sales Manager of KLINGER Fluid Control, Jose Guerrero, it was the first time witnessing the test – "and definitely not the last".

Upgrading for the future

As part of the construction of the Grand Paris Express, Idex La Défense is upgrading its heating and cooling networks by replacing pipes with larger diameters to enhance system efficiency and meet increased demand. For the hot water network, the pipes have been increased to DN400, while the cooling water pipes have grown to DN800.

To meet these new requirements, KLINGER Fluid Control supplied several units of the KHSVI ball valves. Specifically, the hot water network now includes four DN400 and two DN300 valves, all capable of operating at 190 °C (374 °F) and pressure of 25 bar. The cooling water network, scheduled for installation in 2025, will include four DN800 valves, which are designed to operate in cold conditions of 4.5 °C (40 °F) at 16 bar. "These valves are essential for handling both cold and hot water coming from the River Seine, which contains particles and impurities that require exceptional quality and reliability," emphasizes Bertrand Ory, Managing Director of KF Fluid, sales partner of KLINGER Fluid Control in France.

Safety first

"Testing is critical, especially for larger diameter valves. Each test is conducted based on customer requirements to ensure maximum reliability," says Jose Guerrero, Area Sales Manager at KLINGER Fluid Control. The testing process includes external

strength assessments and leakage verification, ensuring no air bubbles or leaks under severe conditions. The KHSVI VVS valves also feature a Double Block and Bleed (DBB) function, which provides an additional level of safety by ensuring complete isolation during maintenance procedures. This feature is essential to prevent any potential leaks and maintain operational safety in such critical applications.

Challenging environments

Idex La Défense's project managers, Isabelle Mosnier and Quentin Notarianni, emphasized the critical nature of the valves' performance: "With the new KHSVI valves, we can sequence the network more efficiently, which helps reduce the number of customers affected during maintenance," explains Isabelle. Quentin adds, "The biggest challenge is the installation, as these valves weigh up to 4.2 tons each and need to be installed 10 meters underground, beneath a heavily trafficked area. Also, the quality of these valves is critical to the long-term success of the project."

The installation required careful planning, with heavy-duty cranes and specialized lifting equipment used to move the valves underground beneath a busy highway. This attention to detail is essential to the safe and reliable operation of the network for years to come, as "these valves are expected to remain in service for decades – potentially even as long as 50 years," says Thomas Buccellato, Sales Manager for the Paris region at KF Fluid.

> "These valves are expected to remain in service for decades – potentially even as long as 50 years."
>
> **Thomas Buccellato, Sales Manager at KF Fluid**

KLINGER Fluid Control's commitment to quality, combined with meticulous testing, ensured that Idex La Défense received valves capable of meeting the challenging demands of Europe's largest business district for years to come.

Quentin Notarianni (left) and Isabelle Mosnier (right), both Project Managers at Idex La Défense, were very pleased with the testing results.

A bubble counter is mounted on the valve cavity to verify tightness in accordance with EN 12266-1 P12.

Gumpoldskirchen/Austria

“Availability is everything”

Growth in the district heating market is boosting sales among suppliers. KLINGER Fluid Control has been positioning itself to be able to participate in the expected district heating boom.

Berlin is forging ahead, with industry experts expecting rapid expansion in the German capital. This brings with it the mammoth task of making the city’s district heating sector climate-neutral: golden but also challenging times are dawning for suppliers.

“We expect noticeable growth in the district heating market. This means enormous sales potential for the next ten years, provided we can supply the required volumes quickly enough,” says Sven Baumgartner, Head of Sales and Marketing at KLINGER Fluid Control. The company has long been preparing for the run on the various valves needed to expand and maintain district heating networks in German-speaking countries and beyond. “Our current production plan envisages the manufacturing of around 3,500 units of the Monoball KHO,” says Sven.

A new product portfolio

The company can draw on many years of experience in serving the needs of district heating suppliers. For decades now, it has supplied ball valves to heating system operators who provide the energy for district heating networks. Now, KLINGER Fluid Control also wants to make inroads on the “underground sector,” i.e. the distribution network that channels the heat energy from producer to consumer in mostly underground pipework. “We’ve not been active in this market yet, but we have developed a new product portfolio around the Monoball KHO that is tailored precisely to the needs

The KHSVI VVS DBB with mechanical AUMA actuator is already seeing active use in the district heating network of Paris.

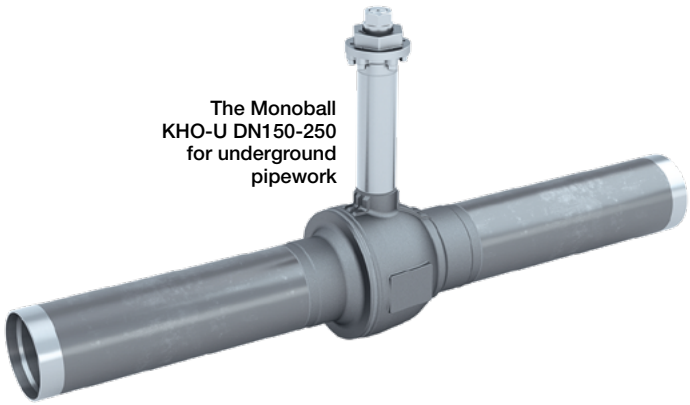
The Ballostar KHI (pictured: the Ballostar KHSVI) is the ideal choice for district heating.

Sven Baumgartner has been Head of Sales and Marketing at KLINGER Fluid Control since the beginning of 2024.

of district heating networks," says Sven. One of these developments is an underground version of the Monoball KHO with an extended stem and extended horizontal pipework. This version also holds benefits for companies specialized in the thermal insulation of district heating valves to minimize heat loss at these critical intersections in the distribution network.

The Monoball KHO is available in all required sizes, with nominal diameters from 15 to 250 covering the needs of both infrastructure providers and end users. KLINGER Fluid Control has been preparing for growth in the district heating market for some time now. "We are currently building up our stock until March and will then be ready to go when the projects kick off at scale. Our focus here is on cooperating with the insulation companies," says Sven. This requires products to stand out from the competition. The Monoball KHO achieves this by being made from a cast whose body has been U-groove welded for extra strength. "Valves of this type are mainly used at critical points

> "Valves of this type are mainly used at critical points in the district heating network, for example under busy main roads. This is where the Monoball KHO shines, as its design is much more robust than that of comparable valves."
>
> **Sven Baumgartner, Head of Sales and Marketing at KLINGER Fluid Control**



The Monoball KHO-U DN150-250 for underground pipework

in the district heating network, for example under busy main roads. This is where the Monoball KHO shines, as its design is much more robust than that of comparable valves," says Sven. The Ballostar KHI, by contrast, is a "high-runner", he adds. This valve's outstanding product features have helped KLINGER Fluid Control win numerous tenders in Germany and France.

Strong customer connections

But valve quality is not all that matters, as Sven points out: "Availability is everything in district heating." That's why KLINGER Fluid Control plans ahead, designing its production processes with future market developments in mind. The valves will be distributed mainly within the German-speaking countries and regions, where KLINGER Fluid Control has always maintained good customer relations. But the company also wants to enter the French market, which holds major growth potential. "Plus we have identified opportunities in some eastern European markets, such as Poland and Hungary," says Sven. He is confident that the next few years will see the district heating market expanding rapidly – and that KLINGER Fluid Control will play a major part in this growth.

The district heating market is expected to grow rapidly over the next few years. KLINGER Fluid Control is ready to meet the increasing demands.

> "Availability is everything in district heating."
>
> **Sven Baumgartner, Head of Sales and Marketing at KLINGER Fluid Control**

Gearing up for growth in district heating

The annual growth rate in the European district heating sector is forecast at around 2.5 percent for the period from 2024 to 2032. That would mean a market volume increase from USD 134 billion to USD 163 billion within this eight-year period. District heating is also experiencing rapid growth globally: from an estimated USD 52.62 billion in 2024, the market is expected to grow to USD 56.94 billion in 2029.

Did you know...?

- …that KLINGER Fluid Control can produce ball valves independently of price fluctuations because raw materials are sourced from different geographic regions to minimize dependence on specific suppliers?
- …that district heating accounts for around 25 percent of KLINGER Fluid Control's business? Other important business areas are the steel industry, and pulp and paper production.
- …that a new stainless steel version of the Ballostar KHI has been developed? The new Ballostar KHI-F is ideally suited to use in the paper industry and can also be used for oxygen applications in steelworks.

Cornelia Daniel and Christian Schachenhofer celebrate the 823rd roof of the “One Thousand and One Roofs” initiative.

The carport’s 642 square meters of PV-equipped roofing generates 113 kilowatts of electricity.

Gumpoldskirchen/Austria

Solar power for Gumpoldskirchen

The new PV system at Klingerpark boasts a maximum output of 113 kilowatts. This covers ten percent of the site’s total power consumption.

It takes patience to reap the rewards of switching to solar power: following the idea of installing a photovoltaic (PV) system on a carport at the KLINGER Holding site in Gumpoldskirchen, four years passed before it finally went online. With the first offers received in 2019, the system finally went into operation in May 2023. That’s quite a wait, considering that constructing the carport that was to hold the PV panels and installing the panels themselves took only four days.

The long planning horizon and subsequent wait before the system finally went online bears witness to the complex process of realizing a large-scale installation like the one at KLINGER Holding. Klingerpark Managing Director Christian Schachenhofer was involved in the project right from the start: “We had initially planned for a smaller system and carport, but after looking at all the options, we decided to scale up.”

Golden prospects

The installation coincided with a huge rush on PV technology: in October 2022, high energy prices spurred both private individuals and companies to adopt solar power. Cornelia Daniel, the owner of consulting firm Dachgold, had her hands full during that time: her company calculates the profitability of PV systems for its clients and, together with their partner enterprise 10hoch4, helped KLINGER Holding implement its parking lot installation. “Once the system was completed, it took another six months for the grid operator to provide us with a metering point and issue authorization for us to produce solar power. At that time, everyone wanted to get on the grid,” says Cornelia.

The wait was worth it: today, KLINGER draws around ten percent of the electricity consumed at the holding company’s Gumpoldskirchen site from its own PV system. “Our demand is around one megawatt and goes mainly into running our production machines, such as rollers, calenders, and CNC milling machines. Some of the solar power is used to charge our fleet of electric vehicles,” says Christian. The new carport boasts six charging stations, with the option of expanding to ten. Expanding the PV capacity is also being considered at Gumpoldskirchen: suitable roof surface is available, although it would first have to be renovated and structurally reinforced.

Rotterdam/The Netherlands

Steam traps at bp: small fix, big impact

How KLINGER The Netherlands' proactive steam trap strategy at bp Rotterdam reduces costs, boosts efficiency, and enhances safety in one of Europe's most advanced refineries.

The bp Rotterdam refinery is one of Europe's largest and most advanced oil refineries. Here, crude oil is processed into a wide range of products, including gasoline, diesel, kerosene, and base chemicals essential for various industries. Steam and condensate systems are crucial in the refining process. Steam is used for various purposes, including keeping pipes at temperature, powering turbines, and in the process to strip light components from heavier components. KLINGER The Netherlands plays a decisive role in the maintenance of the bp Rotterdam refinery's steam and condensate systems. With their technical expertise, they help the refinery operate efficiently and safely, contributing to the facility's overall performance and sustainability.

The challenge

With an ever growing need to save energy in the process industry, bp has been proactively improving its steam and condensate system in recent years. It has done so by preventively measuring steam trap function, (internal) leakage, and plugging. Leaking steam traps result in (internal) steam leaks, which cause water hammer, increased condensate back pressure, and higher operational costs (fuel and CO_2). Plugged steam traps lead to significant problems such as reduced heat transfer, pipe corrosion, and erosion in process equipment. These two failure mechanisms increase maintenance and operational costs by causing many steam leaks in the production units. There was a need at the refinery to improve predictability and proactively replace steam traps even before they caused visible operational problems. This underlines the importance of regular maintenance and inspection to ensure safe and reliable operation of industrial plants.

The solution

In 2022, bp Rotterdam and KLINGER The Netherlands sat down together to develop a new preventive maintenance strategy for the bp refinery's steam traps. After ten years of only performing corrective maintenance when problems became visible, a comprehensive survey was conducted on three assets to assess the condition of each of the steam traps. This analysis revealed that a significant number of steam traps were

> "As well as increasing operational efficiency, the steam traps strategy also improved safety."
>
> **Dennis Pedersen, Reliability Engineer at bp**

Dennis Pedersen, Reliability Engineer at bp

At the bp Rotterdam refinery, crude oil is processed into a wide range of products, including gasoline, diesel, kerosene, and base chemicals essential for various industries.

KLINGER The Netherlands plays a decisive role in the maintenance of the bp Rotterdam refinery's steam and condensate systems.

leaking or just plugged, highlighting the need for the steam trap survey conducted by the Dutch KLINGER subsidiary. These inspections of the three assets were the starting point for a major corrective maintenance program aimed at replacing and modernizing the existing steam traps.

The result

Replacing and upgrading leaking and plugged steam traps has reduced the number of visible steam leaks at the refinery. This, in turn, has reduced maintenance costs, as fewer pinholes occur that require the use of clamps. It has also resulted in a more stable process within the refinery. Moreover, operating costs have been reduced due to lower fuel consumption and CO_2 emission costs. As well as increasing operational efficiency, the steam trap strategy has improved safety by eliminating slip hazards – in winter from freezing condensate, and in summer from algae growth caused by condensate leaks.

Steam applications and condensate systems are critical to the refining process.

Biological reactors host a complex community of microorganisms.

Gandra/Portugal

Clear is the new green

KLINGER Portugal has developed sustainable water treatment for the textile industry.

Stringent wastewater quality standards are a necessity for the protection of local communities and fragile ecosystems. The textile industry is a large contributor to industrial water usage, and its prevalence in water-scarce regions requires careful management and cutting-edge treatment solutions. With a combination of innovative processes and reimagined technologies, KLINGER Portugal designed and executed a sustainable wastewater treatment and water reuse system in only six months.

Issuing the challenge

In late 2023, textile company Quinta e Santos Score, S.A. asked KLINGER Portugal to design and install a complete treatment process that could reuse at least 40 percent of the treated wastewater. According to Cláudio Silva, General Manager of the LiberAqua Business Division of KLINGER Portugal, “We have lots of experience in the textile industry. But for this kind of reuse, and the quantity we are reusing, it is quite a new experience.” Subject matter experts quickly gathered to build a five-stage facility, tailored to the complex treatment required in textile production. Physical, chemical, and biological treatment all combined to create reusable water that meets both regulatory guidelines and operational efficiency, lowering both energy consumption and chemical usage.

Five stages of water treatment

The KLINGER team began with a screening system, which removes fibers and other large solids that cause blockages and wear on finer equipment downstream. Water next enters biological treatment, which eliminates organic matter and reduces effluent color. A complex community of microorganisms is

Construction of the aeration system

> This project represents a significant step forward in promoting sustainable practices within the textile industry."
>
> **José Santos, CEO of Quinta e Santos Score**

cultivated for high metabolic activity, each chosen to consume a specific material. As the biomass blooms, they absorb the colors from the water, gradually returning it to clear. The third stage employs dissolved air flotation (DAF), which uses microbubbles to latch onto suspended particles and float them to the surface for physical removal. These KLINGER systems, perfected for the dairy industry, offer exceptional energy efficiency and low maintenance costs in a limited footprint. Multistage filtration through a water recovery station comes next, featuring several levels of increasingly finer filtration and reverse osmosis. This removes contaminants such as salts and dissolved solids, refining the water for reuse. Last is a dewatering unit, to concentrate biomass volume for more efficient and less costly disposal.

Meeting the goal

Within six months, the KLINGER Portugal team had Quinta e Santos Score up and running at full capacity. This novel system offers continuous water treatment with 40 percent reuse capability at up to 50 cubic meters per hour. "This project represents a significant step forward in promoting sustainable practices within the textile industry," says José Santos, CEO of Quinta e Santos Score. "The recovery of 40 percent of treated water for reuse not only reduces the reliance on freshwater resources, but also highlights the critical role of circular economy principles in ensuring long-term environmental and economic sustainability." Cláudio is eager to put what the team has learned to further use, saying "This project lays a strong foundation for continued innovation and progress in sustainable industrial practices, inspiring future advancements in wastewater management and resource recovery."

One of the first steps in the building process was the construction of the water tanks.

Cláudio Silva, General Manager of the LiberAqua Business Division of KLINGER Portugal, operating the HMI control and programming unit.

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KLINGER
trusted. worldwide.

Publisher: KLINGER Holding GmbH » Am Kanal 8-10 » A-2352 Gumpoldskirchen
Chief Editor: Jasmin Ladinig **Editors:** Josef Puschitz, Michelle Russo
Layout: Egger & Lerch Corporate Publishing
Print: Print Alliance HAV Produktions GmbH

IMPRINT

PRINTED IN AUSTRIA

FAIR PRINT

PEFC
PEFC/06-39-10
Förderung nachhaltiger Waldwirtschaft
www.pefc.at

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Sustainability is important to us, so we applied environmentally friendly, resource-saving, low-emission, and regional production methods and materials in the making of this magazine. We use paper from sustainable forestry and vegetable oil-based printing inks. This magazine was printed and bound in a climate-neutral way in Austria.