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KLINGER YEARBOOK

Pressure-proof perfection



www.klinger-international.com





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

Dear Customers,
Dear Partners,

When you look at all the anniversaries we have celebrated at KLINGER this year, you cannot help but be amazed by the commitment that keeps people going for so long. Our subsidiaries have been celebrating 10, 20, even 50 and more years in business. Especially in times when start-ups come and go in the blink of an eye, stability and reliability are key factors that characterize us here at the KLINGER Group. What also set us apart are unique stories of growth, challenges, and triumphs – which are recounted in our cover story on **pages 7 to 11.**

The company's history is also the subject of this year's interview with the CEOs of the KLINGER Group **(page 6)** – by now a well-established tradition in our annual YEARBOOK. Daniel Schibli and Christoph Klinger-Lohr talk about past and present challenges and reflect on the various innovations, bright ideas, and right decisions at the right time that have made KLINGER what it is today – a global leader, consistently setting industry standards and pioneering new technologies.

One of these technologies involves the various applications of hydrogen – a highly volatile medium that requires the utmost safety in its handling. KLINGER Dichtungstechnik has developed state-of-the-art testing methods to ensure tightness, demonstrating ingenuity and out-of-the-box thinking **(pages 20 and 21).** Similar virtues were needed when KLINGER UK produced its largest Sentry gasket ever **(pages 28 and 29)** and when the port city of Puerto Madryn in Argentina needed to implement a reliable municipal water solution **(pages 44 and 45).**

Water – albeit in the refined form of beer – is at the heart of another example of the engineering skills so often demonstrated by the experts at KLINGER's many companies. In Spain, a major brewery sought help with building Europe's largest solar steam generation plant **(pages 26 and 27).** KLINGER Spain teamed up with Valencia-based Solatom to push the boundaries of established engineering methods – enabling the brewery to save up to 10% of its annual energy consumption.

This issue features several examples of sustainable solutions that promote energy efficiency, resource conservation, and forward thinking to benefit both the planet and our personal future. We start the environmental and social responsibility section with an interview on ESG on **page 34** and share exciting insights into KLINGER's commitment to future generations.

Christoph Klinger-Lohr
CEO

Daniel Schibli
CEO

Peter Müller
CFO

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5 QUESTIONS

? How many days could a TV set run without interruption if it were powered by KLINGER Brazil's new photovoltaic power plant?

» **Find out on page 49!**

? Which animals find a safe haven in the bay area of Puerto Madryn?

» **Read more on page 44!**

? When was Advantage Technical Services founded, before it became KLINGER Advantage in 2013?

» **More in the interview on page 18!**

? What is the combined thermal output of the six large-scale heat pumps installed at Wien Energie's district heating facility?

» **Further details on page 46!**

? Which companies have the same "year of birth" as KLINGER?
a) Coca-Cola
b) Daimler-Benz
c) Both of the above

» **Think you know the answer? Check on page 7!**



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

Interview with the KLINGER CEOs

Constancy and progress: 138 years and counting

Corporate history and family tradition – the foundations of KLINGER's success. Christoph Klinger-Lohr and Daniel Schibli, CEOs of the KLINGER Group, talk about milestones gone by and what we can learn from them today.

KLINGER celebrated a number of anniversaries last year, which you can read all about on the following pages. What's behind the long-lasting success of this company that was founded in Richard Klinger's workshop in 1886?

Christoph Klinger-Lohr: Our company's history goes back a long way and has witnessed two world wars. We saw the need to build something new after each of these wars as an opportunity. Our corporate structure and our independence from the stock market have also helped us to get where we are today.

Daniel Schibli: At KLINGER, we also set great store by drive, by the search for all that's new, by observing the market – including our competitors, to see what they do differently, perhaps even better than us. It's important to be alert at all times and constantly seek a competitive edge.

What do you consider to be the key milestones in KLINGER's history?

Schibli: One key decision was to specifically focus on the leakage-free flow of a wide range of media at a variety of pressure levels in different industrial applications – in other words on gaskets, valves, and level gauges. Our decision to leave the automotive sector in the 1990s proved absolutely right, as it allowed us to focus on our core competences in industry.

Klinger-Lohr: That's right, and our predecessors on the management board also recognized early on that Europe alone was too small a market, which is why they drove forward internationalization. This gained momentum in the 1950s and 1960s, when we positioned ourselves as a globally successful player.

What can we learn from the company's history for the immediate future?

Schibli: To have the courage to embrace advanced solutions for the customer, as well as new technologies, such as artificial intelligence, and legal requirements, like ESG.

What are your expectations for 2024?

Klinger-Lohr: This year will be just as volatile as the last. Although we are facing a difficult situation in Europe, we are operating in a resilient market. I don't hold with doom mongering. At KLINGER, we have people with innovative approaches who can boost our business even when the economy is slow.

Read the full interview on our website:

Corporate History

Celebrating milestones

As we flip through the pages of history, the 2023 anniversaries of several KLINGER companies stand out as beacons of progress, innovation, and enduring commitment. Each anniversary tells a unique story of growth, challenges, and triumphs.

As we reflect on the significant milestones, it becomes clear that the KLINGER Group's journey is one of continuous improvement, innovation, and a deep-rooted commitment to quality and sustainability. These anniversaries are not just a celebration of years past, but a testament to the Group's enduring vision and unwavering dedication to customers, employees, and the environment.

The story of KLINGER began in 1886 with the innovative spirit of Richard Klinger, an entrepreneur who foresaw the industrial potential of his era. His first workshop in Vienna, staffed with just four employees, was the cradle of revolutionary advancements in the industry. Klinger's pioneering invention of the reflex level gauge for steam boilers not only marked a significant technological breakthrough but also laid the groundwork for the company's future trajectory.

Visionary by tradition

Richard Klinger's vision and innovative approach propelled the company to the forefront of industrial sealing and valve technology. Over the years, the KLINGER Group expanded its horizons beyond Austria, establishing a global presence with subsidiaries and manufacturing sites across continents.

The KLINGER Group's journey is a testament to its ability to adapt to changing industrial landscapes while maintaining a steadfast commitment to quality, innovation, and sustainability. From its modest beginnings in a small workshop in Vienna, the KLINGER Group has grown into a global leader, consistently setting industry standards and pioneering new technologies. Here's to the continuation of this remarkable journey, filled with more achievements and successes in the years to come.



Richard Klinger, the founder of the KLINGER Group, whose pioneering spirit and innovative inventions laid the groundwork for a legacy of industrial excellence and global expansion.



Other historic milestones of 1886 – a year of innovations

- Carl Benz files a patent for his "Motorwagen Nummer 1". This marks the birth of the automobile with an internal combustion engine
- John Stith Pemberton invents a carbonated drink infused with coca leaves and cola nut. Today, we call it Coca-Cola, one of the world's most famous beverages.
- After several years of experimentation, Charles Martin Hall succeeds in developing a manufacturing process for aluminum.
- Heinrich Hertz succeeds in sending electromagnetic waves from a transmitter to a receiver.

A decade in Thailand – KLINGER's smiling success

KLINGER Thailand, rooted in the Land of Smiles, celebrated its 10th anniversary. The country's economic transformation and KLINGER's role in the petrochemical industry underscore the company's strategic growth. The dedication and warmth of the local Thai team, led by Rungrudee Anusatsiri (read further on page 40), reflect the country's hospitable spirit and KLINGER's commitment to excellence.



The team at KLINGER Thailand celebrating its 10th anniversary.

2013

Ten years of KLINGER Advantage – a testament to team spirit

A decade of KLINGER Advantage highlights the power of a dedicated team. As General Manager Steve Stratton notes, the company's success is a story of organic growth and a familial spirit that drives its continued advancement. Read the full interview on page 18.

The KLINGER Advantage team has been standing proud for ten years.



Ten years of KLINGER in Mexico

Celebrating a decade of excellence, KLINGER Mexico marked its 10th anniversary as a leader in fluid control in the third-largest country in Latin America. Adhering to the Total Valve Management business model, it provides tailored solutions across diverse process industries including oil and gas, storage terminals, energy generation, mining, cement, and metallurgy, among others. This solidifies its position as a pivotal player in the industry.



The 10th anniversary of KLINGER Mexico and excellence in fluid control are good reasons for a festive celebration.

Pioneering in the marine industry – ten years of KLINGER Westad

Established in 1895, Westad became part of the KLINGER Group in 2013. Initially serving the local pulp and paper industry, Westad transitioned to the marine industry in around 1950. The advent of oil and gas production in Norway in the late 1970s marked a significant adaptation, with Westad excelling in high-demand markets using specialized materials like titanium and super duplex. Today, as a leading supplier, KLINGER Westad manufactures advanced double offset butterfly valves for critical applications for LNG, LPG, ammonia, methanol, and more, in both marine and land-based industries.



Founded in 1895, Westad originally produced valves for the local pulp and paper industry, utilizing a range of specialized stainless steel materials such as titanium, duplex, and 6MO. Additionally, they operated a foundry, which played a significant role in their manufacturing process.

1993

30 years of progress – KLINGER Portugal

The scenic Douro Valley witnessed KLINGER Portugal's celebration of three decades of achievement. In 1995, KLINGER Portugal, initially established as SAIDILUSA, marked a significant evolution as KLINGER became a direct shareholder. This change catalyzed growth and expansion into sectors like mining and water. In 2009, KLINGER Portugal acquired Equifluxo, specializing in pre-treatment, dosing, filtration, and instrumentation equipment. The acquisition of LiberAqua in 2023 marked another milestone, creating significant synergies, strengthening their presence in the market, and reinforcing its focus on the water treatment sector. KLINGER Portugal's 30th anniversary is a celebration of teamwork, growth, and collective effort. The presence of CEOs and Business Unit Directors, along with heartfelt speeches, highlighted the company's appreciation of its dedicated team and its impressive performance over the years.



À saúde! KLINGER Portugal celebrates its 30th anniversary.



Together with Maik Lorenz (left) and Martin Holers (right) from KLINGER A. W. Schultze, among others, the Managing Director of KLINGER Bartsch, Martin Einfeldt (center), celebrated the company's 50th anniversary.

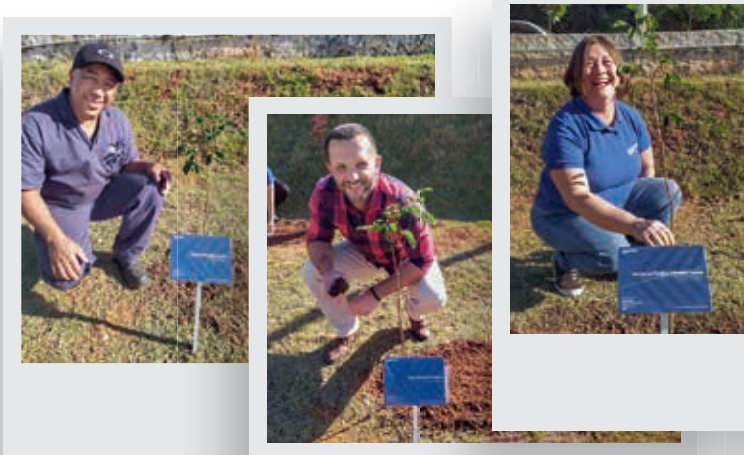


50 years of innovation – KLINGER Bartsch

Founded by Peter Bartsch in 1973, KLINGER Bartsch revolutionized the industry with its innovative use of graphite. Over the years, the company has grown remarkably, now boasting a vast array of 18,500 tools, reflecting its commitment to meeting diverse customer needs. Adhering to stringent quality standards, evidenced by its ISO 9001 and ISO 14001 certifications, KLINGER Bartsch has been a paragon of quality and environmental responsibility.

1973

Moisés Sebastiao da Silva (left), Tiago Augusto Caetano (center), and Arlete de Fátima Moreira Santos (right) are only three of the colleagues who planted trees at the 55th anniversary of KLINGER Brazil.



1968

55 years in Brazil – a journey of growth

Since it was founded in 1968, KLINGER Brazil has exemplified a journey of expansion and innovation. From the inauguration of its globe valve production factory in 1972 to the recent commissioning of its Camaçari unit in Bahia in 2021, the company has been on a remarkable journey of growth. The symbolic planting of 55 Ipê trees on its 55th anniversary, with trees named after long-serving employees, reflects its deep connection to both its people and the environment.

65 years of partnership – KLINGER Australia

Since opening its first Australian office in 1958, KLINGER Australia has been a story of strategic growth and partnerships. The company's response to the economic surge in Western Australia during the 1950s and its addition of a Melbourne office to serve client needs in the eastern region exemplify its adaptability and customer-focused approach. The company's success in projects like the Northwest Shelf project and its expansion into Southeast Asia highlight its ability to respond to market demands and its strong focus on excellence.



In 1980, KLINGER Australia received the Export Award.



KLINGER Australia's office premises in 1959.

1958–



The very beginnings of KLINGER UK in London, 1923.

A century of excellence – KLINGER UK

Since its foundation in 1923, KLINGER UK has embodied a spirit of innovation and excellence. This century-long journey has been characterized by a series of significant milestones and pioneering advancements. The company's early days were marked by the establishment of its first cutting shop in London, a move that signaled its commitment to bringing cutting-edge sealing solutions to the UK market. The subsequent establishment of a new plant in Sidcup in 1935 was a clear indication of KLINGER UK's rapid growth and its dedication to meeting the increasing demand for its innovative products.

The latter half of the 20th century saw KLINGER UK continue to push the boundaries of technology and product development. The acquisition of MacMichael Gaskets in Bradford during the 1980s played a pivotal role in the development of the first asbestos-free compressed fiber gaskets. This innovation not only reflected the company's commitment to health and safety but also its ability to adapt to changing market needs and regulations. The centralized manufacturing facility in Bradford, established in 1995, further exemplified KLINGER UK's growth and its strategic approach to meeting global product demands efficiently and effectively.

–1923

175 years – KLINGER Denmark's unmatched legacy

The story goes that in 1848, 28-year-old Russian immigrant Meir Baruch Cohn opened the doors to his new cigar shop on Strøget in Copenhagen under the name M. B. Cohn. KLINGER Denmark's 175-year history is a rich narrative of adaptation, innovation, and resilience. The company has navigated diverse industries such as the marine business and market shifts, emerging as a leader in the field of valves, gaskets, and instruments. This noteworthy journey is intertwined with the industrial evolution of Denmark, highlighting the company's ability to stay ahead of the curve in a rapidly changing world. The shift from a cigar shop to a supplier of essential industrial components is a testament to the company's agility and visionary leadership.

Throughout its long history, KLINGER Denmark has not only witnessed but also contributed to the development of Denmark as an industrial nation. The company's transition under the leadership of the Cohn brothers in the early 20th century was a pivotal moment, with a shift in focus to industrial products that laid the foundation for what KLINGER Denmark is today. This evolution was driven by a keen understanding of market needs and a desire to source and supply quality products. The company's collaboration with Austrian manufacturer KLINGER in the 1930s further solidified its position as a key player in the industry, setting the stage for the eventual merger of the two brands and the continued success of KLINGER Denmark in the years that followed.

1848–

When Bernhard Cohn (in the picture) and his brother Alexis joined the family business, they had their eyes wide open and could see from the store near the harbor in Copenhagen how all seafaring would be effected using motors from that point forth.





These 270 delicate pages show brief descriptions, numerous product numbers, illustrated with hundreds of detailed hand drawings of items like indicators, lathes, pumps, and machinery packaging.



The major breakthrough for Richard Klinger came in 1922 when he designed the KLINGER piston valve KVN. The invention quickly spread within the railway and marine industries. In Denmark, M. B. Cohn was always on the lookout for high-quality products, such as the revolutionary piston valve, and in 1930, the Danish company entered into an agreement with KLINGER to distribute their products.

Strategic Growth

Extending global reach

Two acquisitions in 2023 reflect KLINGER's strategic vision to strengthen its global presence and expand its product and service offerings across multiple industries.

> “The acquisition of Philippe Jans brings an array of benefits to the Group, including an expanded product range in Belgium. Philippe Jans is known for its expertise in rubber products, which complements KLINGER’s existing product portfolio.”
>
> **Daniel Schibli, CEO of the KLINGER Group**

“Elastic” expansion

In March 2023, KLINGER Belgium acquired Philippe Jans, a supplier of rubber products. This acquisition is part of KLINGER’s strategy to expand its footprint and product offerings, particularly in the Belgian market. “The acquisition of Philippe Jans brings an array of benefits to the Group, including an expanded product range in Belgium. Philippe Jans is known for its expertise in rubber products, which complements KLINGER’s existing product portfolio,” says Daniel Schibli, CEO of the KLINGER Group.

Philippe Jans offers a wide range of products including gaskets, O-rings, industrial hose lines, and high-pressure lines for various industries such as energy, metals, food and beverage, chemicals, and automotive. Additionally, the acquisition of Philippe Jans adds value with its cutting shop, which provides tailor-made services such as the addition of self-adhesive layers and quickly heating endless sleeves for unique sizes. This feature is particularly beneficial to KLINGER Belgium’s customers in industries where customized seals and gaskets are essential.



Daniel Schibli, CEO of the KLINGER Group



Christophe Jans, former CEO and shareholder of Philippe Jans

Philippe Jans’ local presence in Ranst near Antwerp – the industrial hub of Belgium – will be a strong asset to serve customers better. “We are excited to have joined the KLINGER Group and to continue our growth journey together,” says Christophe Jans, now General Manager for the Ranst location.

Flowing forward

In another strategic move, KLINGER Portugal acquired LiberAqua, a company specializing in industrial wastewater treatment and dewatering systems, in May 2023. This acquisition aims to enhance KLINGER Portugal’s ability to provide innovative and sustainable water treatment solutions. Daniel



explains: “We are committed to addressing global water challenges and expanding our portfolio of products and services in the water treatment segment. The integration of LiberAqua into KLINGER Portugal’s operations is a decisive step in strengthening our market presence in this sector.”

Portugal’s water treatment sector is challenged by water scarcity due to climate change and desertification. Stricter environmental regulations and a focus on corporate environmental image are driving demand for innovative water treatment solutions. As a result, this partnership is expected to create synergies that will enable better service for customers and create new opportunities for both companies. Based in Porto, LiberAqua focuses mainly on consulting, engineering, manufacturing dissolved air flotation (DAF) systems and dewatering equipment, maintenance and management of industrial wastewater treatment plants (WWTPs), and stands out as a comprehensive provider of wastewater treatment solutions covering all industrial areas.

A bold move

Both acquisitions are more than just expansions; they represent the Group’s dedication to innovation and customer service. With the integration of LiberAqua and Philippe Jans, the KLINGER Group will be able to offer more comprehensive solutions across different sectors. The move demonstrates the group’s proactive approach to growth and its commitment to being a leading provider of industrial solutions.

> “We are committed to addressing global water challenges and expanding our portfolio of products and services in the water treatment segment. The integration of LiberAqua into KLINGER Portugal’s operations is a decisive step in strengthening our market presence in this sector.”
>
> **Daniel Schibli,**
> **CEO of the KLINGER Group**

LiberAqua boasts a comprehensive range of services for wastewater treatment plants (WWTP).



WHAT'S NEW AT KLINGER



KLINGER Advantage
is celebrating ten years of being part of the KLINGER Group.
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KLINGER Spain's
involvement in Europe's largest solar-powered steam plant.
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Against all odds, Matthew Hayllar (right) and Wael Al. Wakeel (left, Administration and Finance Manager at Zamil Trade and Services) turned barren land into a fully operational service site.

Baish/Saudi Arabia

Breaking new ground

In just three months, a partnership between KLINGER UK and Zamil led to a state-of-the-art facility on what was previously empty land.

As a project manager for KLINGER UK, Matthew Hayllar was used to delivering complicated projects with a tight timeline. With his promotion to Country Manager for Saudi Arabia, that experience was put to the ultimate test. KLINGER UK's new partner Zamil Trade and Services was eager to get started with a dedicated service site in Baish, Jizan Region, Saudi Arabia. When Matt visited the site in mid-December, there was nothing but bare ground. As he recalls: "The customer was actually with me, he's an expert. And he looked at me as if to say, 'There's no way you're going to build that by March.' But yeah, we did it."

A matter of time

This partnership originated with some contacts from KLINGER South Africa, who knew that their KLINGER UK peers had extensive service expertise that matched the customer's needs. On their recommendation, the groups met to hash out the details, and a partnership was born. While the initial project focused on maintenance of plant equipment, the scope of work changed to calibration of safety valves, and early success led to expansion into a fully staffed and stocked on-site field engineering facility. On-site machining, bolt torquing, and bolt



tensioning are also available in support of valve systems. KLINGER and Zamil employees work as one to provide the local market with valve testing, refurbishment, and recertification, often with same-day turnaround.

For Matt, that quick turnaround is a distinct priority. With over 20 years in customer service, he knows that exceeding expectations is the way to retain satisfied customers and earn a local reputation. In one recent project, the work was completed so quickly that the customer thought the valve had not yet left the site. Matt explains: “We can turn some of these calibrations around in a couple of hours. The first one we did in July 2023, there was a picture of it coming off the site at 12:05. It was removed safely, transported, repaired, calibrated, and transported back to site and installed by the KLINGER team at 3:30. The guy said to us, ‘When are you going to start the process of the calibration?’ And we said ‘We’ve done it already. We’ve done the whole operation.’ He said, ‘Oh, that would normally take our previous contractor weeks.’ That’s the type of thing we want.”

Further expansion

As the venture matures and the facility is fully staffed up and trained, the KLINGER UK team plans to expand service offerings over time. Valves ranging from half-inch up to 36-inch are currently supported, with no limits in terms of brands. Specialized tooling and modifications are available for uncommon models and set-ups. Custom racking ensures that the highly sensitive pressure safety valves retain their settings after transport, and test certificates are provided after calibration. Eventually, should local clients show an interest, the venture may expand into control valves, possibly requiring an additional facility. Matt remains focused on providing value to local clients, while also offering mentorship and opportunities to local employees. He says, “We want to grow the business and we want to invest in the community as well. We’ve got big plans.”

> “We want to grow the business and we want to invest in the community as well. We’ve got big plans.”
>
> **Matthew Hayllar, Country Manager Saudi Arabia for KLINGER UK**

Services offered in Saudi Arabia by Zamil

- Flange management: end-to-end service, including specialist bolting services, on-site precision machining service, and QA/QC verification
- PSV testing and servicing: to confirm desired set pressure and proper reseal
- Hydraulic bolt torquing and tensioning: accurate bolt loading, followed by direct load applied evenly across all bolts to eliminate factors introduced by torquing
- On-site machining: fast, comprehensive, and safe service for a variety of fluid control products
- Gaskets: a wide range of advanced sealing materials for both common and unique fluid and gas applications
- Valve spares: fast and available back-ups to minimize costly downtime
- Engineering calculations: expert bespoke designs and solutions from a team with over 90 years of experience



KLINGER and Zamil’s collaboration delivers unparalleled valve refurbishment and calibration with same-day turnaround, setting new standards in efficiency and customer satisfaction.

Baton Rouge/USA

The shape of a decade

We interviewed Steve Stratton, General Manager of KLINGER Advantage, as the company celebrated its 10th anniversary. Founded as Advantage Technical Services in 2002, the company started as a specialty valve distributor in Baton Rouge, Louisiana. They joined the KLINGER Group in 2013, soon growing into a leading provider of fluid control equipment and services to the U.S. Gulf Coast region.

How long have you been with KLINGER, and how did you get to where you are?
This is my 35th year with the KLINGER Group. I started in Ohio (1988), the fluid sealing side, and I have worked all over North America including Canada. I moved to Texas in 1995 (primarily fluid sealing). During 2010, I received a request from Scott Peters, Managing Director of KLINGER Thermoseal, "to find a valve distributor we can acquire." Upon completing the acquisition, I moved from fluid sealing to 100% fluid control. During my 35-year career here, I've progressed from internal sales and regional sales management positions to the General Manager position for KLINGER Advantage.

Which major milestones stand out from the last ten years?
Within KLINGER Advantage, we have grown sales organically and promoted personnel internally. Our people, our staff – I wish I could clone them all. If you were to present our growth to a Wall Street investor, he would say, "Jeez, three to four times growth in sales over the course of ten years, no increase in head count... good investment." The small group of people we have is the nucleus of our company that has taken our business from A to B. KLINGER Advantage is an incredibly elite group of employees, I consider them family members that happen to work for the company.

What long-term plans are you putting in place?
We have a people shortage issue across the industry, let us call it "people critical mass." We have colleagues 50 and older, we have a group of "youngsters" 30 and younger, with a void in between (ages 31 to 49). Due to the previously mentioned void, there is not a lot of history or experience passed down. Our plan is to locate and hire the right people – hire to keep, hire to retire.



As General Manager, Steve Stratton has been overseeing the growth of KLINGER Advantage.

Is there anything else you would like to share?
I have been with the KLINGER Group for 35 years. Great people, great organization. I remember when Dr. Thomas Klinger-Lohr came to our plant in Ohio. I had just graduated from college (1988). He introduced himself, then went around the office and chatted with everyone. When he came back the next year, he remembered my name. I thought to myself, "This guy oversees more companies than I will ever imagine being responsible for, however he remembers me after a year?" That impressed me, but that is the KLINGER organization. The team at KLINGER Advantage is an excellent group; it has nothing to do with me. It is those people doing what they do, every day. I am just lucky to have them on my team.

> "The small group of people we have is the nucleus of our company that has taken our business from A to B."
>
> **Steve Stratton, General Manager of KLINGER Advantage**

Welshpool/Australia

Catching fugitives

As economic and environmental shifts transform the landscape of leak detection, ATMECO is evolving with technology to match.

With more than twenty years of specialization in leak detection and repair (LDAR), KLINGER Australia's integrity services department ATMECO has seen trends come and go. "We are continuously seeing advancements made within LDAR detection methods and reporting technologies," explains Silvio Stojic, General Manager of ATMECO. The LDAR process captures fugitive emissions, so named because they require specialized tools to detect. Volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) can leak from valves, flanges, and pumps, causing risk to both employees and the environment. A combination of "boots on the ground" inspection and state-of-the-art equipment keeps the ATMECO team at the cutting edge of industry programs, with customers reaping the rewards.

The right tech at the right time

While plants have long tried to minimize leaks as a cost-saving measure, the environmental impact is more of a priority now than ever before. Customers are targeting methane detection in a bid to reach zero emissions, in accordance with United Nations (UN) standards. Optical gas imaging (OGI) is the preferred system for this work, using cameras with custom filters to detect the infrared bands that signal a leak. ATMECO has upgraded to a photonic system, which allows even more precise measurement. According to Edwin Ukpiebo, Projects & IT Support Coordinator at KLINGER Australia, "The advantage is that you can isolate other compounds in the vicinity. With traditional optical cameras, if you have steam in the background, you pick up steam. With photon detection, it doesn't pick up steam, it just picks up methane." This and other cutting-edge tools feed directly into ATMECO's bespoke component integrity management system (CIMS), allowing clients to manage all plant data and assets in one central web platform.

Meeting metrics

Keeping up with laws and regulations can be just as challenging as keeping up with tech. With more than 140 countries pledging a net zero emissions target, efforts are ramping up across the globe to meet those dates. In addition, more than 80 countries have committed to the Oil & Gas Methane Partnership 2.0 (OGMP), another UN effort that improves the accuracy of methane emissions reporting through a five-level framework. The top level, known as the "Gold Standard," is highly ambitious, causing some companies to trial detection methods that prove inefficient. Satellite monitoring, for example, offers plants a bird's eye view, but cannot account for which emissions are native to the facility, and which are brought in by wind.



Edwin Ukpiebo, Projects & IT Support Coordinator at KLINGER Australia



Silvio Stojic, General Manager of ATMECO Integrity Services at KLINGER Australia

> "The advantage is that you can isolate other compounds in the vicinity. With traditional optical cameras, if you have steam in the background, you pick up steam. With photon detection, it doesn't pick up steam, it just picks up methane."
>
> **Edwin Ukpiebo, Projects & IT Support Coordinator at KLINGER Australia**

Fortunately, the ATMECO team has the experience to discern which techniques are both sensitive and accurate enough to meet OGMP guidelines, while also meeting the needs of the plant. As Edwin explains, "In classical monitoring, you will be at level three of the OGMP. To step up to level four and five, you need these extra technologies. It depends on the kind of facilities you have. A particular technology may be suitable for one type of facility, but it may not be good for another facility." Whatever specific tools and methods are needed, be it sensors, drones, cameras, or old-fashioned hands-on examinations, ATMECO's LDAR team has the skills and resources to meet all the client's needs. According to Silvio, "Our main focus is on assisting companies in reaching net zero emissions for the future. So, whether it's our LDAR program or integrity management, it's part of that goal."



On the KLINGER hardness test bench, gaskets are performance tested under high material pressures and gasket compression.

Gumpoldskirchen/Austria

Safety for hydrogen applications

Thanks to state-of-the-art test methods, KLINGER Dichtungstechnik can provide precise details of its products' leak tightness – a boon for critical applications such as hydrogen.

To make flange connections "calculable", test standards have been devised that specify the ways in which specific tightness characteristics should be determined. Key among these standards is EN 13555, which describes tightness tests including one that uses helium as a test gas at an internal pressure of 40 bar (580 psi). KLINGER Dichtungstechnik has already published many data sheets for its products, with characteristic values that can be used to calculate flange connections.

Naturally, users and customers benefit greatly from information that gives them additional assurance of safety when joining their flange connections for hydrogen applications. This includes, for example, the availability of reliable sealing characteristics to calculate the specifications for safe hydrogen applications. To this end, KLINGER Dichtungstechnik has carried out a large number of EN 13555 tests at the mandatory minimum gasket compression values with helium in-house as well as commissioning tests with hydrogen at an external partner.

The following materials were extensively tested:

» KLINGER top-chem 2000
» KLINGER top-chem 2000soft
» KLINGER top-chem 2003
» KLINGERSIL C-4240
» KLINGERSIL C-4400
» KLINGERSIL C-4430
» KLINGER CompenSil



Benjamin Floegel heads the materials testing lab at KLINGER Dichtungstechnik.

"As we don't have the necessary equipment for testing with hydrogen and cannot carry out measurements with this gas on site for reasons of safety, we have outsourced the hydrogen tests to an accredited lab," says Benjamin Floegel, head of the materials testing laboratory at KLINGER Dichtungstechnik. For each gasket material, four DN40/PN40 test specimens were taken directly next to each other from a sheet of sealing material. One gasket each was tested in the KLINGER test lab with helium at 10 and at 40 bar (145 to 580 psi). The other two gaskets were tested in the accredited test labs of amtec Messtechnischer Service, also at 10 and 40 bar (145 to 580 psi), with hydrogen as the medium.

Precision testing

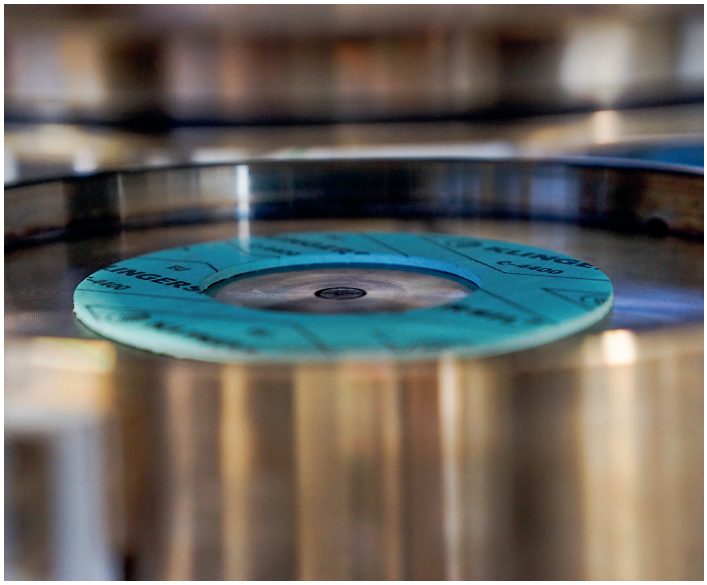
The colorless and odorless inert gas helium has a similar atomic radius to the hydrogen (H_2) molecule, which consists of two hydrogen atoms. Although helium can pass through tiny openings and channels, like the highly flammable H_2, it is harmless. That is why Benjamin and his team can handle it in their own laboratory and carry out precision gasket testing. "To determine how KLINGER's high-quality gasket materials behave with hydrogen under the same conditions, we commissioned comparative tests on various KLINGER sealing materials," says Benjamin. "When the results came back, we were pleasantly surprised, as they were almost identical to those for helium."

Ahead of the competition

"For users and our customers, this means that flange connections for hydrogen applications can be designed using the existing leak tightness parameters for helium – that's a big advantage," says Benjamin. Graph #1 shows the similarity in readings for helium and hydrogen.

The tests highlighted another advantage: all of the KLINGER PTFE materials tested delivered much better results at 10 and 40 bar (145 to 580 psi) with hydrogen than





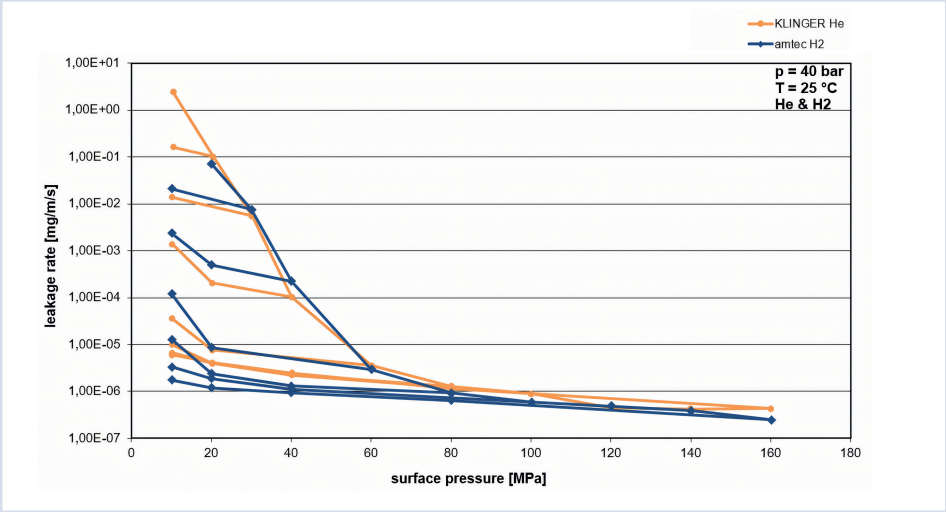
A KLINGERSIL gasket on the test bench before a test.

> “When the results came back, we were pleasantly surprised, as they were almost identical to those for helium.”

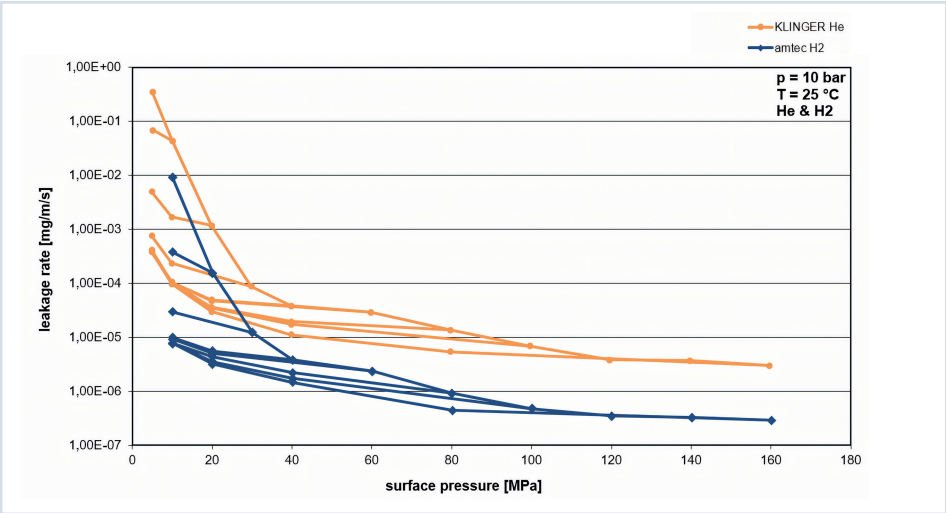
Benjamin Floegel, Head of Material Testing at KLINGER Dichtungstechnik

in the equivalent tests with helium. This can be clearly seen in the graph for KLINGER top-chem 2003 (graph #2). More information and further details are available upon request.

With hydrogen applications becoming ever more widespread, KLINGER Dichtungstechnik can now skillfully leverage its experience margin. Reliable gaskets are a vital component in all industry sectors – from the chemical industry to power generation to mobility. Benjamin Floegel: “Nothing is 100% leak-proof. But based on our results, we can now clearly demonstrate the leak tightness classes that can be achieved at different compression values with our products for hydrogen.”



Graph #1: Leakage curves EN 13555 KLINGER CompenSil 92x49x2 mm



Graph #2: Leakage curves EN 13555 KLINGER top-chem 2003 92x49x2 mm

> “Nothing is 100% leak-proof. But based on our results, we can now clearly demonstrate the leak tightness classes that can be achieved at different compression values with our products for hydrogen.”

Benjamin Floegel, Head of Material Testing at KLINGER Dichtungstechnik

Gossau/Switzerland

Fungus good and bad

Lending a helping hand to a Swiss organic mushroom farm: how KLINGER Gysi kept mold at bay and saved the day with a three-meter-diameter gasket.

Some like it hot, others can't stand the cold. Some crave the light, others prefer being in the dark. And air humidity is also an issue – growing edible mushrooms is a tricky business. Even more so when you do it on a large scale, like Fine Funghi from Gossau in Switzerland, which supplies the organic retail trade with, as its name suggests, fine edible fungi. KLINGER Gysi has been getting in on the act for the past three years, with a smart sealing solution for the substrate production process.

The collaboration between KLINGER Gysi and Fine Funghi began in 2021, when the latter encountered problems with an agitator that is used to mix the substrate for growing the mushrooms. The pasty, sawdust-based mixture with a moisture content of 60% is sterilized by heating it in the agitator. "During this process, the agitator must be hermetically sealed. We had a problem with the seal, so the substrate became contaminated and started to go moldy," says Felix Steiner, who is responsible for substrate production at Fine Funghi. In his experience, a single mold spore in a 2.5 kilogram bag of substrate is enough to prevent the fungal crop from growing. "Everything must be completely clean and sterile. That's why we even fill and package the substrate in cleanrooms," says Felix.



Felix Steiner has a degree in agriculture and has been working at Fine Funghi for eight years, where he is responsible for substrate production.

A speedy solution

It follows that a leak in the agitator is more than just a minor issue. So without further



It takes five to six weeks before king oyster mushrooms are ready to harvest.



Up to four tons of mushroom cultivation substrate made mainly of beech sawdust is mixed and heated in the agitator.



The new seal was a perfect fit between agitator and lid.

ado, Felix contacted Thomas Marchesi, the Area Sales Manager for Gaskets and PTFE products at KLINGER Gysi. The two already knew each other, and it didn't take long before Thomas was able to present Felix with a solution to the challenging situation. "Difficulties were presented by the agitator's lid, which could barely be lifted, and the very thin, uneven flanges. Our aim was to replace the seal without having to completely dismantle the agitator, and to eliminate the inclination of the flange plate," says Thomas. This was achieved with a solution consisting of eight separate sealing sheet segments that were joined together in a dovetail pattern. The result: a flat seal with a diameter of 3.3 meters.

The material used was a special composite developed in-house made of KLINGERSIL C-4324 and EPDM (ethylene propylene diene monomer) rubber. As Fine Funghi had already been using pressure safety valves from KLINGER Gysi for some time for its mushroom production, Felix was familiar with the products' quality. The first seal performed well for a year before being replaced due to insufficient contact pressure in several places. Its replacement was attached to the agitator using larger bolts. It now fits evenly and is expected to last for several years. The agitator has a capacity of four tons, and heat-treating the substrate, which takes up to ten hours, generates considerable pressure inside the vessel. This represents a stress test for the 3.3-meter-diameter gasket, which it withstands perfectly thanks to its special composition. Thomas sums up the successfully concluded cooperation with Fine Funghi as follows: "The excellent interplay between customer, field service, and our technology offers the customer tangible added value and a solution that works for their particular application."



Thomas Marchesi is Area Sales Manager for Gaskets and PTFE products at KLINGER Gysi.



Fine Funghi

Fine Funghi is based in Gossau, Switzerland and has been a specialist in the cultivation of organic edible mushrooms for over 35 years. Its 30 employees take care of the cultivation of oyster, king oyster, shiitake, and pioppino mushrooms. The company produces around 230 tons of organic produce a year. This is supplied mainly to the retail trade, including organic food stores and, as the main customer, the Swiss cooperative and supermarket chain Coop. The main growing season for mushrooms is in fall and winter.



Hanover, Berlin/Germany

Navigating uncharted waters

KLINGER Gebetsroither is conquering new markets in the field of hot water and heating systems. It has already made a successful start in Germany, where the focus is on growth in the district heating sector as a viable alternative to oil and gas – and to drive the energy transition.



Zvonko Godina achieved the famous "first million" in sales for KLINGER Gebetsroither in Germany.

The famous "first million" spurs on entrepreneurial spirit – even if obstacles lie in the way. In expanding its hot water and heating systems business into Germany, KLINGER Gebetsroither had to also contend with a pandemic. All the more remarkable, then, that Zvonko Godina managed to break into new sales territory, with the turnover in 2022 barreling beyond the million mark in the space of just three years.

Leveraging competitor bottlenecks

It was an incredible achievement, given that this is a foray into a wholly new environment. "Unlike in Austria, KLINGER is not as familiar a brand name for hot water and heating applications in Germany. Rather than starting our sales activities on a home market, we entered completely new territory," says Zvonko, whose job it was to develop networks and reach out to trading partners. It wasn't an easy undertaking during COVID-19, when travel restrictions often hampered Zvonko's attempts to visit customers. Luck was on his side, though: as competitors were struggling with delivery bottlenecks, KLINGER took advantage of these short windows of opportunity. But it wasn't all down to luck: Zvonko also made good use of his extensive knowledge of the German hot water and heating technology market, gained in previous phases of his career.

> "With our indoor heat transfer units and district heating boilers, we offer an innovative replacement for gas boilers. We expect them to be very popular, as Germany also wants to shake off its dependence on gas."
>
> **Gerhard Praxmarer, Sales Manager at KLINGER Gebetsroither**



A growing market: household transfer units for district heating.

Roll on the heat transition

KLINGER Gebetsroither wants to stir up this market with its household transfer units for district heating. These transfer heat from the district heating network to the household's heating and hot water applications. Produced in Gumpoldskirchen and available since 2009, they are among the newer additions to the KLINGER product family. The idea of offering these units on the German market was first mooted as early as 2016 – an ambitious project, as around 20 suppliers are already competing there. And, with their sometimes snazzy brand names, they are of course better known to the dealers than the KLINGER products. "With our indoor heat transfer units and district heating boilers, we offer an innovative replacement for gas boilers. We expect them to be very popular, as Germany also wants to shake off its dependence on gas," says Gerhard Praxmarer, Sales Manager at KLINGER Gebetsroither. He expects to see a boom the district heating sector within the next seven to ten years.

Growth in hot water and heating systems

The figures confirm the trend: hot water and heating systems already account for more than a quarter of total sales at KLINGER Gebetsroither. Recent years have seen enormous growth, with rates in the range of 10 to 15%. Strong growth is also being pursued in the German market. From Hanover and Berlin, Zvonko travels up and down the country together with his colleague Vinzenz Pöhland. About his customer visits throughout Germany, Zvonko says: "We always have a demonstrator of the KLINGER household transfer unit with us." Despite its hefty weight of 28 kilos, he doesn't travel anywhere without it. After all, prospective customers need to get an idea of what this product looks and feels like before making a buying decision. "It's not something you can convey in a Zoom call," says Zvonko.

Germany is gearing up for the energy transition. In Schönefeld, Brandenburg's fastest-growing municipality, newly built residential complexes are being equipped with KLINGER household transfer units.





Major project in Berlin-Schönefeld, Germany

In 2023, as many as 400 KLINGER indoor heat transfer units were installed in a large construction project in Berlin. KLINGER Gebetsroither also supplied distribution boxes, which are also made at its Austrian headquarters in Gumpoldskirchen. The transfer units were delivered fully assembled. The customers – in this case the installation contractors – only had to make the required connections.



Europe's largest solar steam production plant produces an energy peak of 3.5 megawatts thermal.

Quart de Poblet/Spain

Taking solar boiler technology to an industrial scale

Solar boiler manufacturer Solatom joined forces with KLINGER to build Europe's largest solar-powered steam generation plant.

In a boost for sustainability, Valencia-based Solatom was selected by a major beer brand to provide its solar boiler technology for a large-scale brewery project in Quart de Poblet, Spain. KLINGER provided all of the necessary valves and instrumentation for the project, while sharing technical expertise to guide the installation. Solatom's technology aims to reduce the carbon footprint of industries that use boilers to generate steam for manufacturing processes. The brewery installation – now Europe's biggest solar steam production plant – uses 6,000 square meters of mirrors to produce an energy peak of 3.5 megawatts thermal. It will provide up to 10% of the brewery's demand for heat.

"This is a very interesting and important cooperation for KLINGER, as Solatom is an expanding company working with a highly innovative process," says Juan Carlos Cuenca, Technical Sales Lead at KLINGER Spain. "We collaborated closely with Solatom to share our technical knowledge for all the elements needed in their development work." Juan Carlos has been working at KLINGER for more than 40 years. With significant knowledge of KLINGER products and experience in steam production, he played a crucial role in specifying the installation. "For Solatom we offer the full range of KLINGER equipment of all the valves, sealing materials, and instrumentation to measure level, flow, and pressure. We also provide heat-shielding materials," says Juan Carlos.

> "A successful project like this is only possible when you build trust with the client. Our technical consultancy team did an excellent job working with Solatom."
>
> **Iván Gadea Vacas,**
> **Regional Sales Manager,**
> **KLINGER Spain**



KLINGER valves are critical for shutting off the installation during maintenance.

A flourishing partnership

The beer brewing industry is a heavy user of steam, both for heating malt and cleaning vats. KLINGER has been supplying its equipment to brewers for many years, so the company had an existing relationship with the brewer behind the Spanish plant. This client introduced KLINGER Spain and Solatom – laying the foundation for a partnership that is now flourishing. “It’s great to work with the team at KLINGER Spain, as they knew the end customer already. KLINGER is always there to support us in developing the right solution,” says Solatom’s Chief Technology Officer, Carlo Terruzzi. “Even though you design everything with software, in the end you have to work together in real life. Human cooperation is the most important part.”

Thanks to the flexibility of KLINGER’s equipment, Solatom is able to apply its solar boiler technology in different industries that may use fuel types other than steam. Aside from brewing beer, the company’s solutions are also used in the production of snacks such as chips and popcorn. With their combined offering, KLINGER Spain and Solatom are now looking ahead to other solar boiler projects. First up is another brewery for the same end customer – this time in Mexico. “The brewer knows us and sees that our solution is reliable. We’re looking forward to continuing the excellent cooperation with Solatom. They know the process, and we know the best solution with our range of products and experience,” says Regional Sales Manager for KLINGER Spain, Iván Gadea Vacas.

> “KLINGER offers a complete solution that enables us to bring Solatom’s solar boiler technology to a range of different industries. This way we can help to reduce the carbon footprint of operations that typically use fossil fuel boilers.”
>
> **Juan Martinez, Chief Operations Officer (COO), Solatom**



Working at the brewery was nothing new for the KLINGER team.



Sam Foulds, Apprentice Advanced CNC Machinist at KLINGER UK, helped create the largest Sentry gasket at KLINGER UK.

United Kingdom, Australia

Under the sea

KLINGER UK and KLINGER Australia teamed up to create the largest ever Sentry gasket, to be used 280 meters below the ocean's surface.

When an LNG client turned to KLINGER Australia for help with a subsea project, it quickly became a global effort. Project Engineering Manager Nick Evans spearheaded this initiative and joined forces with Technical Lead Scott Whelan of KLINGER UK: at DN1050 (42") Class 1500#, this gasket would be the largest high pressure class Sentry model to date at over 1.1 meters (43.3 inches) in diameter.



Scott Whelan bolts a flange.

Meeting the challenge

When manufacturing large diameter gaskets, the process often differs from the usual methods for standard sizes. Holes in this gasket would be too deep to use regular drilling, requiring the team to shift to electrical discharge machining (EDM). This process creates an arc using electrodes and dielectric liquid, and is particularly effective on hard metals. Other specialized processes included a custom fixture built to hold the ring in place for EDM, as well as a second fixture built to weld the rings together.

Of course, designing and building these giant gaskets was only the beginning. Next, KLINGER had to safely deliver them to the

> "From purchase date to installation, we're at about 20 weeks. We were basically the only people who could do it."
>
> Scott Whelan, Technical Lead at KLINGER UK





Nick Evans, Project Engineering Manager at KLINGER Australia



Scott Whelan, Technical Lead at KLINGER UK

job site. Because these custom gaskets are so labor intensive, they are shipped in pairs, to ensure that a spare is ready should any problems occur. They must stay flat, level, and still during their journey across the sea. Special jigs are used to mount the gaskets for the trip, protecting their shape and sealing surfaces.

The future of large gaskets

With this project completed successfully, KLINGER has refined the logistics of large gasket development, reducing delivery to a highly competitive time frame. As Scott points out, “From purchase date to installation, we’re at about 20 weeks. We were basically the only people who could do it.” Installation and testing took a total of only 4 hours, with the customer saving an estimated 44 hours of downtime when compared to pressuring the full system using conventional methods. The subsea Pig Launcher Receiver (PLR) was deployed to a depth of 280 meters. With skilled subject matter experts and custom facilities now in place, the project scope will only continue to increase. Current resources support the production of Sentry gaskets up to DN1500/60 in, though the team isn’t ruling out even larger efforts in the future. Nick remarks, “We keep pushing the boundaries with Sentry.”

KLINGER Sentry Gaskets

- Metallic gaskets used in high pressure and hazardous pipelines
- Available in a variety of core materials, based on media compatibility and temperature range
- Allows leak testing on single connections to avoid pressurizing the whole system, reduce volume of testing media used, and minimize costly downtime
- Validates each joint’s integrity at installation, reducing the need to re-visit the joint
- Meets API 6A, ASME B16.20, and ASME B16.5 standards
- KLINGER Gasket Insertion Tool (KGIT) works with standard subsea tooling and protects divers from injury

Find out more about the KLINGER UK Gasket Insertion Tool:



The "seals team" at Motion is well versed in KLINGER sealing solutions. From left to right: Jordan Fisher, Brent Freeman – National Manager Sealing, Dave McGoran, Sarah Comrie – Business Development Manager, Tarun Sehrawat, Farrell Walker – Product Specialist Sealing.

Auckland/New Zealand

A little bit of everything

For three years, KLINGER Australia has partnered with Motion New Zealand to round out their sealing portfolio with high-quality gaskets.

Popular culture knows New Zealand for its striking landscapes and adventure tourism, but industrial experts see its deeper virtues as well: as an isolated island cluster deep at the edge of Oceania, this country excels at self-sufficiency. Mark Forster, Executive General Manager at Motion, points to the manufacturing industry as an example: "You don't get vast quantities of a particular type of machinery, you get small quantities from every geography all around the world. You have to be a bit of an expert in everything. That's why we're so keen on keeping that product specialization, because there's so much to know." Brent Freeman, National Sealing Manager at Motion, adds, "We're so far away from everyone that New Zealand has this attitude of 'We can fix it ourselves.'"

With six brands covering a wide swath of engineering consumables and components, Motion has built a strong reputation over many decades. But when a long-term industry peer Terri Pomana, Country Manager New Zealand at KLINGER Australia, reached out, Motion realized they still had a gap to fill: gaskets. As Mark says, "Partnering with KLINGER was a great opportunity for us to enter the gasket market."





Mark Forster, Executive General Manager at Motion (left), and Neil Hulme, General Manager Industrial Products at Motion (right).

With established customers across multiple thriving industries, including the petrochemical, wastewater, and agricultural sectors, Motion was perfectly positioned to offer a wide variety of KLINGER gaskets to the New Zealand market.

Just in time

According to Kevin Woolley, Managing Director at KLINGER Australia, the timing was just right: "We needed somebody that could support our products, not just commercially and logistically, but technically as well. It was an easy fit for us." Brand-specific training progressed smoothly, since the Motion team was already well versed in sealing products. In turn, KLINGER remains responsive, as Brent explains: "The support we've had from the team in Perth has made us look very professional and that builds customer confidence."

An authentic fit

Motion and KLINGER each have a long history of superior quality and pristine logistics, both of which are key factors in this market. Because counterfeit product is an ongoing problem, traceability and failure testing are a high priority for New Zealand customers. According to Brent, "The reason this has worked so well is because of the relationship that we have. That's what made this venture work well, and means it will continue to work well into the future."

Athens/Greece

Generational quality

Family owned for 142 years, the Chryssafidis Group has built its reputation brick by brick.



Alexander Makridis is the fourth generation of the Chryssafidis family.

Founded in 1882, Chryssafidis is one of KLINGER's most enduring sales partners. Hailing from Greece, the eponymous owner started selling KLINGER products soon after the Second World War. This began an alliance that grew to multiple KLINGER locations. When the final named Chryssafidis passed away in the early 1990s, fourth-generation nephew Alexander Makridis returned from his work at Goldman Sachs in the United States to assume leadership. Under his purview, the group expanded to 150 employees across southeastern Europe and Nigeria.

An emphasis on service

Pairing quality products with technical expertise has been a cornerstone of the brand since day one. According to Antonis Kovas, Steam Product Manager of Chryssafidis S.A. for 22 years, each engineer is extensively trained to develop a focused skill set: "We are increasing our technical expertise, so we can support customers better. We are considered the foremost specialists in steam applications in Greece." Steam is popular across multiple verticals, particularly in the food and beverage and pharmaceutical industries. KLINGER valves and specialized gaskets are key products in this space, as are level gauges for steam boilers and marine applications.

Happy customers, happy employees

With many decades of reliability under their belts, Chryssafidis is garnering attention in the industry. Chryssafidis is ISO and TÜV certified and was awarded the Athens Chamber of Industry and Commerce "Prize of Excellence and Tradition." Furthermore, Chryssafidis' employees have spoken by awarding Chryssafidis Group the "Great Place to Work" distinction. With ample opportunities to upskill, employees are celebrating both their own careers and the company culture, which includes three key values – passion, devotion, and teamwork.

As Antonis reiterates, employee quality is fundamental to the group's success: "Our strategy is to have specialized engineers support customers at the highest level by constantly adding value to their production lines and processes. In addition to working with excellent partners like KLINGER, our key advantage is the high quality of specialized engineers on the job."

A "Great Place to Work": Chryssafidis in Greece.



SUSTAINABILITY COME TRUE



KLINGER Brazil
relies on solar energy.
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KLINGER Argentina
supports a reliable water supply in Puerto Madryn.
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KLINGER Group's
reporting of reliable sustainability data.
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KLINGER Sweden
is a "Healthy Place to Work."
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KLINGER Thailand's
General Manager Rungrudee Anusatsiri has thrived in engineering and sales.
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KLINGER Die Erste's
Managing Director Aaron Tseng promotes youth entrepreneurship.
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Gumpoldskirchen/Austria

"We need to know where we stand"

The clock is ticking: by 2025, ESG reporting must provide reliable sustainability data from the KLINGER Group. Ines Weikl is the person responsible for reporting and Yusuf Avci is in charge of operational implementation.

Ms. Weikl, you and Yusuf Avci have been working together on a major project for several months now: the KLINGER Group's ESG report. How are you approaching this project?

Ines Weikl: I have been with the company since October 2021 and work in Group Accounting. As such, I cover all of our accounting and controlling activities, which come into play in sustainability reporting. I'm still new to the topic of sustainability as such. I'm more of a numbers person, and that's where I can draw on my experience in preparing annual reports.

What figures do you have to deal with in the ESG report?

Ines: They range from energy consumption and headcount to the gender pay gap and supplier data. To meet our reporting obligations, we have defined around 100 key performance indicators (KPIs), which our subsidiaries must provide to varying degrees. To collect the data needed for the ESG report, we use our existing financial reporting infrastructure, i.e. the same system that provides us with an overview of the financial situation of the entire Group.



Ines Weikl has more than 15 years' experience in reporting key financial figures and preparing annual reports.

With this reporting procedure, the KLINGER Group complies with its obligation under EU law to contribute to meeting the climate targets. What benefits do you expect from ESG reporting?

Yusuf Avci: Our first task is to define uniform standards for all KLINGER Group subsidiaries to allow comparisons and to provide us with a clear idea of the status quo. The report helps us establish a common starting point. This is the foundation upon which we can then build the necessary optimization measures. If we don't know where we stand, we cannot work out where we need to go. The facts and figures that ESG reporting yields will help us move in the right direction.

In preparation for meeting our reporting obligation, you have already spent the past months working on creating a standardized framework for the Group. What are the challenges here?

Yusuf: The KLINGER Group has a diversified make-up, comprising a wide variety of companies. There's a difference, of course, depending on whether you are reporting



Yusuf Avci and Ines Weikl in conversation.

climate data as a production company with energy-intensive manufacturing or as a trading company that operates large warehouses. So, we will have to make individual adjustments on site at each company to ensure that they can provide us with the required figures.

Ines: To distill the various approaches into a common denominator, we have defined ten fields of action (see infobox), which we derived from the ten ESG criteria. These apply equally to all subsidiaries. We've also drawn up specifications that say exactly who has to disclose what data, the period within which this should happen and even which unit of measurement to use.

When will the first ESG report be compiled?

Yusuf: This comprehensive report is subject to strictly defined legal regulations and must be submitted for the first time in 2026. That means we have to collect the data for the 2025 financial year to be able to prepare and submit it within this time frame.

Ines: Just like annual reports, the ESG reports must undergo an external audit.

What findings from the report are you especially looking forward to?

Ines: The social data will certainly be interesting, because ESG reporting is also about the well-being of employees and not just about environmental issues. We have already done small-scale surveys in this area, but in future we will get a more comprehensive picture.



Yusuf Avci has held various positions within the KLINGER Group since 1992. He has been ESG Manager at KLINGER Holding since September 2023.

And it will also make the data comparable throughout the KLINGER Group for the first time. It'll be interesting to see what effects the standards have on a global scale, especially with regards to what potential we can still leverage here.

The ten ESG fields of action at KLINGER

- Climate change
- Water consumption
- Water pollution
- Substances of Concern
- Circular economy
- Customers and end users
- Workers' conditions
- Workers in the value chain
- Corporate culture and values
- Compliance



Improving sustainability is a priority at the site of KLINGER Dichtungstechnik in Gumpoldskirchen, Austria.

Gumpoldskirchen/Austria

Protecting the environment with wood waste

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.

> “This saves us around 100 tons of CO_2 per year, helping us reduce the environmental footprint of our KLINGERSIL products.”
>
> **Stephan Piringer, Health, Safety, and Environment (HSE) Manager at KLINGER Dichtungstechnik**

If you’ve ever had chewing gum stuck to the sole of your shoes, you can imagine the problem of dealing with elastomers. Producing sealing sheets at KLINGER Dichtungstechnik involves large quantities of the sticky material. The challenge here is to prevent it from adhering to containers, tools, and machines. Solvents play a vital role in this, and ethanol is the substance of choice for managing the sticky elastomer compounds. We have now implemented an environmentally friendly solution.

In the production of sealing sheets, ethanol flows in a closed circuit. The colorless, highly flammable liquid can be forever reused after it has been in contact with the elastomer, making it fully recyclable. But waste and evaporation losses do occur over time, so that the circuit must be topped up with 40,000 liters of ethanol per year. Having previously used ethanol of fossil origin, KLINGER Dichtungstechnik switched to a sustainable alternative at the beginning of August 2023: bioethanol.

Reducing our carbon footprint

“This saves us around 100 tons of CO_2 per year, helping us reduce the environmental footprint of our KLINGERSIL products,” says Stephan Piringer, Health, Safety, and Environment (HSE) Manager at KLINGER Dichtungstechnik. Bioethanol essentially has the same chemical make-up as fossil ethanol and can be used without having to make any change in the production process. Stephan first considered finding an alternative to fossil ethanol five years ago. At the time, the venture failed due to lack of a reliable supply.





The HSE manager at KLINGER Dichtungstechnik, Stephan Piringer, has already been investigating the use of bioethanol for more than five years.

> We are working non-stop to reduce our carbon footprint. With bioethanol, we have found an effective means of achieving major improvements with relatively little effort."

Stephan Piringer, Health, Safety, and Environment (HSE) Manager at KLINGER Dichtungstechnik

Having found a bio-refinery capable of supplying the required volumes, his plan has finally borne fruit. KLINGER Dichtungstechnik obtains its bioethanol from an Austrian manufacturer located only about 300 kilometers from the Gumpoldskirchen production site. "Sourcing from a regional supplier avoids exploiting developing and emerging countries while at the same time strengthening our domestic economy," says Stephan. Made from wood industry waste using biological-chemical processes that convert the cellulose into ethanol, bioethanol is exceptionally environmentally friendly in its production. The fact that only wood waste from sustainably managed Austrian forests is used as raw material further improves the environmental balance. Stephan explains: "No tree is felled specifically to produce bioethanol: we're benefiting exclusively from the efficient use of residual materials."

"We are working non-stop to reduce our carbon footprint. With bioethanol, we have found an effective means of achieving major improvements with relatively little effort," says Stephan.

Solvents

Ethanol is only one of several solvents used in the production of elastomer sealing sheets at KLINGER Dichtungstechnik. The solvents are added to the viscous, rubbery wet mesh so that it remains processable and does not adhere. Safety is of particular concern here, as ethanol is a pure chemical substance and as such highly flammable. That's why the production plants at KLINGER Dichtungstechnik have an explosion-proof design.

Taichung City/Taiwan

A contribution to society

Through ASSET in Taiwan, Aaron Tseng has found his mission: using his business acumen to give back.

Charitable donation has always been a part of Aaron Tseng's life. For many years, the Managing Director of KLINGER Die Erste faithfully set aside a part of his income for causes close to his heart. In 2015, several events led him to rethink his approach to philanthropy. First, a high school classmate experienced the devastating loss of a child, in a public incident that involved a mentally ill stranger. Soon after, Aaron enrolled in an Executive MBA (EMBA) class, where his professor and classmates had a rigorous discussion about corporate social duty. As owners and managers of small- and medium-sized firms, Aaron and his cohorts felt a need to use their skills to improve their communities. As he explains, "I should do something to contribute to society instead of just donating. The social contribution that allows me to maximize my benefits should be related to my business operations." This notion of "doing good via what you're good at" has reshaped his world view.



Fostering youth entrepreneurship is a common goal of KLINGER Die Erste and the Association of Sustainable Social Enterprise of Taiwan.

A different kind of business

With the Association of Sustainable Social Enterprise of Taiwan (ASSET), Aaron is now aiding Taiwan's national effort to promote social enterprise (SE). This business model was developed in the UK in the late 1970s, as a way for private organizations to focus on social problems while operating with financial autonomy. Though the term is not widely known, groups such as credit unions, housing co-ops, and community centers often operate as social enterprises. ASSET holds SE competitions each year to select teams whose proposals have market potential, a charitable spin on a practice made famous by entrepreneurial reality shows. Aaron describes the process: "We have ten people judge these proposals in one whole day. We discuss the proposals, ask them to give us a presentation, then we give them a score." In addition to receiving financial and business education, the winning ASSET team can also use the contacts of EMBA groups in the city for networking and resource opportunities.



Aaron Tseng is Managing Director of KLINGER Die Erste, a Taiwanese joint venture.



Today's youth is channeling a great deal of social consciousness.

> "I should do something to contribute to society instead of just donating. The social contribution that allows me to maximize my benefits should be related to my business operations."
>
> **Aaron Tseng, Managing Director of KLINGER Die Erste**

The current project is an Accounting and Environmental, Social, and Governance (ESG) seed program. Accounting majors receive a monthly subsidy and gain work experience at an international firm during their studies. Firms provide seed money and foster new hires, the school gains real world experience in its curriculum, and students are matched with a firm after the program ends. Graduating with prior experience as an entry level hire gives students a huge advantage, and has already attracted the attention of major firms like KPMG and PwC. As Aaron points out, this all came to be thanks to his group's business contacts: "It's because we have the resources. We have a connection with the school, we have a connection with the accounting firm, so we can make it possible."

Doing good done well

Previous project bids have been quite varied from year to year, which Aaron credits to the social consciousness of today's youth. "I like to see what the young people think, what is the trend. Each year, the proposal of the majority is very different," he says. For several years, the teams were all focused on environmental causes: one winner was an enzyme dish cleaning product made from citrus waste produced by a juicing factory. Aaron's board was able to connect this team with Taiwan's largest chain juice company, creating value across multiple industries. Another winner was a restaurant that used only "ugly" fruits and vegetables, which did not pass muster to be sold in stores. Customers were able to pay for the meal with labor, barter, or free pricing of their choice.

Following the pandemic, teams have begun to focus more on remote solutions, like e-commerce and off-site learning. As the current seed program wraps up and word spreads about its success, Aaron will continue to also spread word of the ASSET program, hoping to instill a sense of social duty in his peers: "It's good to show what we are doing besides earning money, what we can give back to our society."

Did you know...?

» ... that in addition to regular school, many Taiwanese students attend after-school tutoring sessions or cram schools, known as "buxiban" (補習班)? These institutions are an integral part of the education system and are designed to provide additional coaching to help students excel in their academic subjects, especially in preparation for the highly competitive university entrance examinations.

» ... that since the formation of the joint venture in 2021, KLINGER Die Erste has expanded its valve range through a fully integrated manufacturing process, providing customized product packages for key industries such as pulp and paper, steel, energy, marine, chemical, and oil and gas?

» ... that Die Erste was founded in 1982 as a family-run business? Die Erste has collaborated with KLINGER for 25 years and, boasting over 5,000 valve and accessory products in its catalog, has established a reputation for excellence in sourcing, manufacturing, and distribution.



In 2023, KLINGER Thailand celebrated its 10th anniversary.

Rayong/Thailand

An engineering legacy

With a strong family foundation, Rungrudee Anusatsiri has flourished in a role that combines engineering and sales.

Rungrudee Anusatsiri, General Manager of KLINGER Thailand, is modest about her aptitude for engineering: “At 18 years old I had no idea what I would be in the future, but because of good luck I got the quota to get into engineering university.” Her logical and methodical nature is apparent as she carefully outlines her thought process, explaining the different tracks available in her degree field and why she chose her current path. It quickly becomes clear that an engineering mind runs in the family: her mother, despite having to drop out of school at a young age, is currently refurbishing the household water system by learning plumbing via YouTube videos. So far she has replaced the tanks, filter, and pump without help. “She’s very impressive,” Rungrudee says fondly. “I may get my engineering skill from her, I think.”

The art of the sale

Rungrudee began her career as a systems engineer in a measurement and control company and as a sales manager for a large petrochemical company, driving strategy through market research and competitive intelligence. Over the years, she moved into sales and took on larger roles in other international companies based in Switzerland and the U.S., where she was responsible for chemical, petrochemical, oil, and gas businesses with more team members and larger markets. In 2019, Rungrudee joined KLINGER Thailand as General Manager, assuming a large roster of initiatives to expand multiple business segments in a variety of sectors. Her team soon flourished, meeting and beating sales goals year after year as they expanded the business across the country and internationally. One specific

metric that Rungrudee takes pride in is the team's increase in turnover. Sales is a field notorious for high churn rates across all industries, so increased retention is a crucial way to measure both employee and customer satisfaction. "When we recruit, we train employees for their specific job and for growth within the company, so they always have a plan to follow," she explains.

Skill stacking

As Rungrudee mentors her young team members, she sees a common pattern: those who excel are prone to skill stacking, or layering multiple talents on top of each other. A solid STEM (Science, Technology, Engineering, and Mathematics) foundation is only the beginning: sales members must know the product, know the research and development behind the product, and know the strengths and weaknesses of the product. Then, they must share that information with the customer, so he can make an informed choice. "You need to make yourself trustable," she says. "If you say the right thing ten times, but you say the wrong thing one time, the customer will remember." As her team members build their careers over a long time frame, they gain more knowledge and become even more valuable assets to the customer, thus creating a feedback loop of value. Rungrudee encourages them to learn all aspects of the business, not only to increase their knowledge, but also to help other departments where needed: "In addition to having the skills required for your day-to-day job, you might sometimes need to work across departments. Our customer service team, for example, sometimes also performs purchasing tasks."

> "I'm not inspired by famous people in the world, that is too far away from me. I just look to the people near me, and my mom is like a super woman. She takes care of everything."
>
> **Rungrudee Anusatsiri, General Manager at KLINGER Thailand**

Pitching in to help is a common theme in Rungrudee's success, both in the job and at home. Despite her natural knack for STEM, Rungrudee knows that support from others is an important part of her career trajectory. When her first child was born and she considered leaving her job to raise him, her mother insisted that Rungrudee kept working, offering her own time to help fill in the gaps. When the family juggled obligations as a team, Rungrudee was able to rise through the ranks, building a solid career and providing for her family as they had provided for her. This is what she values: regular people who make a practical difference for their loved ones. "I'm not inspired by famous people in the world, that is too far away from me," she muses. "I just look to the people near me, and my mom is like a super woman. She takes care of everything."

> "If you say the right thing ten times, but you say the wrong thing one time, the customer will remember."
>
> **Rungrudee Anusatsiri, General Manager of KLINGER Thailand**





With her helmet on, Pauline Wingrove-Botha is not just breaking barriers but also redefining leadership.

Nelspruit/South Africa

Under pressure

An expert in overcoming obstacles, Pauline Wingrove-Botha has made an art of rising to the occasion.

For KLINGER South Africa's Business Unit Manager Pauline Wingrove-Botha, family has played a pivotal role in her career trajectory. "I was always a woman in a man's world, influenced by my father," she explains. As an employee for DeBeers, her father moved the household from Namibia, to Botswana, to Cape Town, as he carried out his duties in the mining industry. This family history makes for apt foreshadowing, since diamonds are a worthy metaphor for Pauline's career success: when faced with intense pressure, her tenacity helps her to shine.

Pushing for growth

With a keen interest in industry sparked by her childhood, Pauline began her career in the automotive sector in Nelspruit. Though her initial duties were administrative, she soon pushed for more involvement in the workshop to hone her technical expertise. As her skills and reputation grew, she attracted the attention of KLINGER, and was invited for an interview. The branch that hired her consisted of a tiny building with only a few shelves, but Pauline was determined to change that: "I was hungry to know what KLINGER was about, and soon we started growing." A year later, she joined sales in the field, helping them to bring on increasingly larger customers and jobs. Soon her branch grew from two to six staffers, with the team earning multi-year contracts from several big names in the industry. They've moved premises three times in five years, and are now expanding their current location threefold.

A mentor and a plan

When asked about her career role models, Pauline enthuses about her boss, Phillip Herbst: "He's not only a boss, he's a leader. He empowers people to want to succeed." Eager to grow both her career and her branch, Pauline thrives on being challenged. Being pushed to continuously achieve more brings out her competitive nature, which in turn fuels her long-term planning. As she explains, "If you don't have a vision, and you don't have a goal, what are you working towards? We all have our visions and our missions and our goals, and we're going to accomplish them – whether it takes a year, whether it takes six months, we're going to get there."

Goals and motivation are only part of the equation, though, and grace under pressure is another large part. Even a short conversation with Pauline demonstrates her unflappable nature. With her branch undergoing expansion and her local power grid experiencing intermittent outages, she juggles

> "If you don't have a vision, and you don't have a goal, what are you working towards?"
>
> **Pauline Wingrove-Botha, Business Unit Manager at KLINGER South Africa**





Pauline, in her PPE, embodies the spirit of KLINGER – hands-on, dedicated, and unafraid to get her hands dirty in a world that often underestimates her.

overlapping crises with cheerful competence. Despite the chaos of blackouts and the mess of construction swirling behind her, she laughs off the stress and carries on, undaunted.

The keys to success

When asked about the most important factors in her success, Pauline responds instantly: “Perseverance is key. You’ve got to persevere and remain curious. I’ve got such a passion for KLINGER, and I’m passionately curious.” This persistent drive to keep attaining knowledge has served her well, taking her from an admin role to a management role in only a few short years. Despite this rapid advancement and spending her entire career in male-dominated industries, she admits that she still has to overcome assumptions. “That’s probably one of the most difficult things I’ve had to face,” she says. Some people still see her only as the woman who answers the phone, while others assume from her stylish appearance that she is unwilling to get dirty when the job calls for it. When that happens, she relishes the opportunity to prove them wrong. Suiting up in her PPE and getting fully hands-on with the products never fails to earn respect.

So, what does Pauline recommend to other women in industry? Her advice hearkens back to her knack for perseverance: “Harden up. It is a seriously, seriously tough world out there.” Much like the diamonds that began her journey, Pauline is thriving under pressure.

Puerto Madryn/Argentina

Ebb and flow

A growing populace and a heavy tourist season had Puerto Madryn seeking a reliable water supply solution. KLINGER Argentina delivered a new pressure reducing station within a tight time frame.

> "When you break a pipe, you waste water. You have to work fast in these cases."
>
> **Cristian González, Sales Manager at KLINGER Argentina**

The rhythm of the tides is a familiar feeling in Puerto Madryn, a coastal city in the Chubut province of Argentina. Located in the sheltered bay of Golfo Nuevo, Puerto Madryn supports a diverse range of marine life year-round. Southern right whales breed from May to December, while Magellanic penguins arrive in September and fledge in April. The city's beaches and mudflats are important feeding and resting grounds for flamingoes, rheas, and guanacos. Across the bay, the rocky Valdes Peninsula is home to elephant seals, which are preyed on by orcas.

Ecotourism is popular in this region, as visitors come from all over to appreciate the wildlife and natural beauty. Birdwatching, snorkeling and diving, and sunbathing are all popular pastimes for locals and travelers alike. Accommodation ranges from budget hostels to luxury hotels, while cultural and dining options offer similar variety. This vibrant town is growing rapidly, creating water supply challenges particular to the region. Local public services cooperative Servicoop sought the help of KLINGER Argentina, knowing their reputation for fluid control solutions. Fabio Martin, who serves as the Planning, Logistics, and Operational Administrator at Servicoop, explains: "As a tourist city year-round, it uniquely blends the tourism, industry, commerce, and residential sectors, with an important deep-sea port for Patagonian imports and exports. It must be considered that Puerto Madryn's altitude ranges from 0 to 130 meters above sea level, with a current and projected geographical dispersion of more than 25 kilometers from south to north and from east to west. This complicates management, especially as the population swells by 40% in peak season, intensifying water demands amid varying elevations."

Under pressure

While officials tried to balance the constantly shifting demand for water, they knew they needed a better solution. The current system was not rated to handle the necessary pressures to fulfill service requirements, leading to intermittent outages. As Servicoop Administration Counsel President Harry Woodley says, "Sometimes in summer, they have to cut some part of the town, or reduce the flow, because they cannot get water for the whole town at the same time." In some cases, pressure fluctuations led to pipe ruptures, which required immediate and costly repair. Furthermore, such dam-



Emanuel Brizuela (left), Sales Executive for KLINGER Argentina, and Fabio Martin (right), Operational Administrator at Servicoop.



Perfect alignment was key in this delicate project.



The DN 300mm pressure reducing station will connect the main reserve to a secondary reserve in Puerto Madryn.

age was concerning from an environmental perspective, which is also a priority in a town that thrives on ecotourism. “When you break a pipe, you waste water. You have to work fast in these cases,” points out Cristian González, Sales Manager at KLINGER Argentina.

Further complicating the water load was the city’s industrial needs. Aluminum production, fishing, and agriculture are important to the local and national economy, and Puerto Madryn’s strategic location ensures that demand for its products and services will only grow over time. Despite these many aspects all competing for limited resources, the city was dedicated to finding a green solution to its water needs. “They don’t waste water, they reuse,” says Emanuel Brizuela, Sales Executive for KLINGER Argentina. “They have treatment plants, they reduce, they don’t leave the water to the sea. They are a very conscious city, a thinking country. Here in South America we are conscious about the Earth.” After consulting with local experts, the team agreed that a DN 300mm pressure reducing station, connecting the main reserve to a secondary reserve would provide sufficient flow control for downstream needs.

> “They don’t waste water, they reuse.”
>
> **Emanuel Brizuela, Sales Executive for KLINGER Argentina**

Timing is everything

Because this project would require taking the system offline, everything had to be aligned perfectly to minimize downtime. KLINGER and Servicoop coordinated with province officials, ensuring that product delivery and installation would not be delayed by red tape or logistics. As Servicoop Head of Operations, Rodolfo Jaramillo was familiar with the steps needed to smooth the way: “With all these sectors – engineering, logistics, beneficiation, people in the field – everything has to happen fast. The cost of the water, people going without water, the money that you waste repairing, all of these factors mean it has to be done fast. We had to be very well coordinated in order to do the work in a fast way and in a proper way.” From ideation to bringing the system back online, the project took only 180 days. One key element in the timing process was delivering the reducing station in pre-assembled sections, minimizing assembly time and ensuring joint integrity. KLINGER’s supply chain experts were on hand to determine the maximum delivery sizes that the town’s infrastructure could support, balancing convenience with the practicalities of road delivery.

With this project successfully completed, the team is looking forward to further expansion as Puerto Madryn continues to grow. Robust industrial sectors, a thriving tourism industry, and a burgeoning population will require additional upgrades and more advanced technical solutions to meet local water needs. As Cristian shares, “Engineering is already thinking about another station like this, because the population is growing very fast. Maybe a few years is enough, or maybe less.” With a crew of proven experts on the case, rolling with the tides will keep Puerto Madryn on the right track.



Fabio Martin, Operational Administrator at Servicoop

Are you curious about how the pressure reducing station was delivered and installed? Watch the video:

Vienna/Austria

From wastewater to district heating

At Wien Energie, Project Manager Georg Danzinger is working on the future of district heating. He and his team are planning a plant with up to seven large-scale heat pumps in Vienna. The heat energy is supplied by wastewater. How does it all work?

The large-scale heat pump installation at the ebswien wastewater treatment plant is one of the Austrian energy supplier's key projects. "This will be the largest Wien Energie plant that uses heat pump technology," says Georg Danzinger, Project Manager in the decarbonized heat generation assets department of Wien Energie. Currently in its first stage of expansion, the plant now boasts three large-scale heat pumps from the French manufacturer Johnson, which together yield a thermal output of about 55 MW. Together with his team, Georg develops projects to decarbonize district heating. "Our goal is to implement renewable heat generation in addition to renewable power generation," he says.

Energy from wastewater

Large-scale heat pumps represent an important step toward sourcing energy more sustainably. Using this technology, Wien Energie can draw heat energy from the wastewater of the adjacent main sewage treatment plant, helping decarbonize heat generation. "In the first phase, we are installing three of a total of six large-scale heat pumps, which together will produce a thermal output of 110 MW. We'll even have space for a seventh heat pump. The water for the district heating network has an outlet temperature of 93°C (199°F)," Georg continues. This heat is fed into a district heating network that distributes the heat to households and businesses in Vienna.



Wien Energie has assumed a pioneering role throughout Europe in decarbonizing district heating – not least thanks to projects such as the large-scale heat pump at ebswien.



When it comes to technical issues, Georg Danzinger (left) was always able to count on the solution-oriented approach of Markus Fuchs (right) and the KLINGER Gebetsroither team.

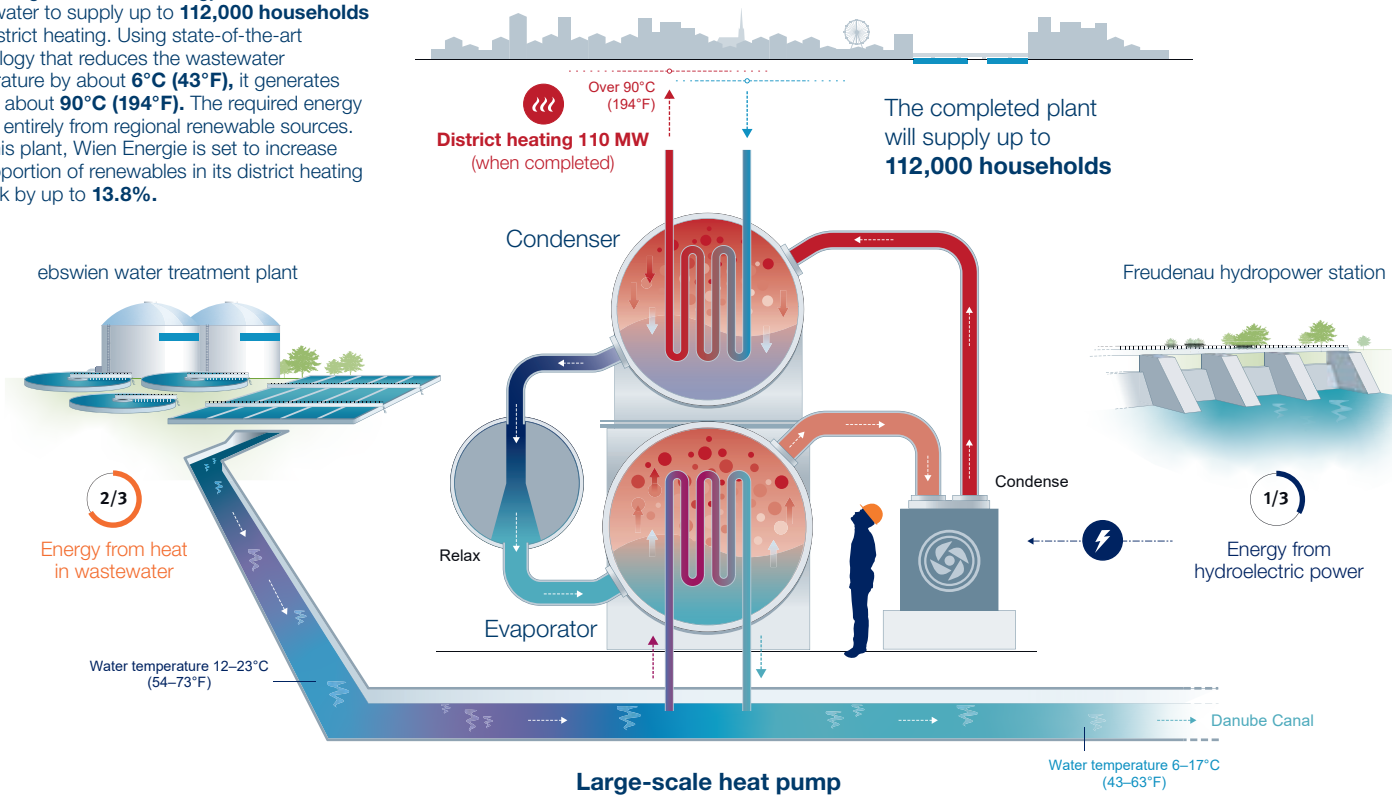


The KLINGER KVN piston valve in its smallest size, DN15, provides venting and draining of pipework.

Large-scale heat pump at ebswien

WIEN ENERGIE

Wien Energie draws heat energy from the treated wastewater to supply up to **112,000 households** with district heating. Using state-of-the-art technology that reduces the wastewater temperature by about **6°C (43°F),** it generates heat of about **90°C (194°F).** The required energy comes entirely from regional renewable sources. With this plant, Wien Energie is set to increase the proportion of renewables in its district heating network by up to **13.8%.**



Large-scale heat pump

Annual yield up to **880 GWh p.a.** (when completed)
Annual CO_2 savings up to **300,000 metric tons** (when completed)

Source/Copyright: Wien Energie/APA-Grafik on Demand



In winter, the wastewater coming from the treatment plant has an outlet temperature of 11–12°C (52–54°F); in summer, it reaches 24–25°C (75–77°F). If the source temperature is higher, a higher outlet temperature can be achieved. "This improves the heat pumps' COP (coefficient of performance), i. e. their efficiency," explains the experienced project manager, who has also managed environmental impact assessments (EIA) for major projects.

District heating with 100% renewables

The fact that wastewater tends to be viewed negatively by the public is not an issue here, as it offers significant potential. Apart from being a source of energy that can be utilized for district heating, the heat pumps lower the temperature of the wastewater returning to the Danube, which reduces its heating effect on the river. "We extract heat from the wastewater, and so our heat pumps have the added benefit of a positive impact on the Danube's flora and fauna," says Georg, who is pleased with his project's multiple benefits. Not only that: the plant sources its energy for district heating from 100% renewables. Thanks to a direct line from the Freudenau power station, a third of the energy used comes from hydropower. The remaining two-thirds is sourced as heat from the wastewater from the treatment plant. "So if you put 1 kW of electrical energy in, you get out 3 kW of usable heat energy," says Markus Fuchs, Key Account Manager at KLINGER Gebetsroither.

"We extract heat from the wastewater, and so our heat pumps have the added benefit of a positive impact on the Danube's flora and fauna."

Georg Danzinger, Project Manager at the Decarbonized Heat Generation Assets department of Wien Energie

True teamwork is called for

Georg plans to commission the plant in the fall of 2023, with the heat pumps going into regular operation in mid-2024. Throughout the planning phase, there were many details that needed to be clarified both with the manufacturer of the heat pump and with suppliers, such as KLINGER Gebetsroither. "We had to once again prove ourselves in the construction company's bidding process," says Markus. District heating is nothing new for Wien Energie, having been used to supplying Vienna with heat for about 60 years. "KLINGER valves and gaskets have proven themselves over many decades," says Georg. The fact that he can rely on these products' high quality also makes his job easier. Unlike with other projects, there is no general contractor for this one. "We manage everything ourselves, although we also receive support from other departments of Wien Energie, such as Electrical Engineering and Control Station Technology. For that, we are grateful," says Georg.

Valves "a safety feature"

Overall, the project cost around EUR 70 million. The share of costs for KLINGER valves in this total was almost negligible. And yet they have a huge impact on the entire heat pump process. "Nobody wants to be standing next to a leaky valve, where hot water turns to steam in the atmosphere. When it comes to the danger of leaking valves, some think of media such as chemicals. But although water vapor doesn't cause pollution, standing right next to a leak is not a good idea. The pressure and temperatures are very high; it's not 'just' water," says Markus. KLINGER offers sealing elements specifically for district heating applications, and Georg even goes one step further, calling valves "a safety feature."

The future of district heating

Hydrogen and geothermal energy are hot topics, also at Wien Energie, "but we'll save that for a future article," says Georg. So, the future of district heating looks promising. With projects like its large-scale heat pump installation, Wien Energie demonstrates that sustainable, efficient heat generation is possible. And with partners like KLINGER Gebetsroither at their side, they are well equipped to master the challenges of the energy transition.

> "KLINGER valves and gaskets have proven themselves over many decades."
>
> **Georg Danzinger, Project Manager at the Decarbonized Heat Generation Assets department of Wien Energie**



The wastewater comes from Vienna's adjacent main wastewater treatment plant.



With a length of almost 50 meters, the pipe network runs in the plant's basement, supplying the process with wastewater and coolant.

KLINGER Gebetsroither products in action

- Ballostar KHSVI – These ball valves from KLINGER Fluid Control are installed at the site's periphery to the district heating network and have weld ends. They shut off the return and flow and are used with nominal diameters up to DN800 (for the pump station). They must withstand pressure of up to 28.5 bar and temperatures of up to 180°C (356°F).
- Ballostar KHA – This KLINGER ball valve has a pre-stressed, elastic sealing element. In the Wien Energie plant, it is sometimes used as a secondary shut-off downstream of a KVN piston valve.
- Ballostar KHI – This ball valve is the ideal match for district heating due to its unique sealing element. It, too, comes from the KLINGER Fluid Control factory.
- KVN – The design of this piston valve has been tried and tested for over 100 years. It is used for draining and venting the pipework and withstands the plant's working pressure of 15–16 bar.
- KLINGER TopChem2000 – The universal high-performance gasket from KLINGER Dichtungstechnik is used with flanged valves.
- Combined shut-off and check valves – with its space-saving design, the Zwick product has a proven track record in pipework.



The photovoltaic panels at KLINGER Brazil.

Camaçari, Várzea Paulista/Brazil

A power move

KLINGER Brazil embraces the sun with a switch to solar energy.

Known for its tropical rainforests and brilliant sunshine, Brazil is perfectly situated to take advantage of the latest advancements in solar energy. When KLINGER Brazil invested in updated technology for their manufacturing and storage facilities, photovoltaic panels were prominently featured among the upgrades. These panels, which convert sunlight into electricity, have generated about 14% of the company's energy needs since their installation in May 2023. KLINGER expects the system to pay for itself in less than five years of use.

Bright ideas

Sunlight is absorbed by solar panels as photons through silicon cells, which then create direct electrical current (DC). An inverter changes this direct current to alternating current (AC), making it usable for residential and business needs. After collection, excess power is stored and converted into credits for future use. This ensures that generated power is not wasted, and that demand is balanced to prevent straining the system.

Alberto Maier, Managing Director at KLINGER Brazil



Tangible benefits

With software tracking, KLINGER can see the benefits of this system through real data. Alberto Maier, Managing Director of KLINGER Brazil and project lead, shares examples from the dashboard, explaining, "In nine months of operation, the panels have produced energy equivalent to over 800 computers turned on for one year, and a TV set running uninterrupted for more than 31,000 days."

While the cost savings are clear, KLINGER is also committed to renewable energy to reach net zero. As Alberto adds, "The energy savings generated by solar production at KLINGER Brazil are equivalent to more than 2,000 trees planted per year. Preserving the environment is imperative. Photovoltaic panels, in addition to promoting energy autonomy for KLINGER Brazil, also significantly reduce the company's carbon footprint, thus contributing to the mitigation of climate change."

Environmental benefits

Environmental equivalents
achieved by use of renewable energy

- The energy to operate a TV for **31,365 days**
- The pollution an average passenger car emits over **21.24 years**
- The energy to power **833.15 computers** for **1 year**

Greenhouse gases
avoided by use of renewable energy

- Carbon dioxide: **212,446.20 lb**
- Nitrogen dioxide: **328.20 lb**
- Sulfur dioxide: **1.10 lb**

Carbon offset

- **96.36 metric tons**
  You have offset the equivalent of: **20.50 ac***

*Typically, one acre of pine forest will offset the equivalent of 4.69 metric tons of CO_2



A KLINGER location full of smiles as colleagues conquer wellness with the powerful combo of surveys and on-site medical exams. Teamwork, health checks, and happiness unleashed.

Stockholm/Sweden

Heavy lifting

When it comes to fostering a healthy business environment, KLINGER Sweden puts in the work.

Once KLINGER Sweden received its "Healthy Place to Work" certification from OneLab, it put a stamp on what the team already knew: employee well-being is a top priority at KLINGER Sweden. Whether it's emphasizing proper diet and exercise during the workday or redesigning the facility layout to meet safety standards, the Swedish KLINGER subsidiary has enforced a bottom-up approach to health that touches every aspect of the employee experience. This atmosphere improves employee satisfaction while also creating a more efficient and effective business.

The office gym allows staff to let off steam on a regular basis. This is a welcome change for Michalina Geijer.



Employees can start their day with a provided breakfast, and fresh fruit is always available. An on-site gym provides easy access to training equipment, boosting personal endurance and camaraderie as staff invite each other to reach fitness goals. Challenges through an innovative app gamify fitness through points and quizzes, sparking friendly competition. Each person also receives a stipend toward health-related costs, allowing them to fund anything from therapeutic massages to personal trainers.

Sweating the details

While a robust daily routine is integral to a healthy lifestyle, that's only the first step in the wellness program. Regular surveys through the "&frankly" app measure employee satisfaction on a rolling basis, allowing leadership to track and solve issues in real time. Besides these self-reported metrics, KLINGER Sweden also incorporates objective measurements through lab testing. Regular on-site medical exams monitor critical vital signs and detect early warning signs of future health concerns. According to Malin Kahn, KLINGER Sweden's Business Controller, "The check-ups are good for preventing illness, both physical and psychosocial, and the &frankly app is useful for taking the temperature of the company."

Site improvements are another factor in the branch's drive for wellness. Expanding the warehouse allowed the team to incorporate 5S principles, making for a neater and safer



facility. “We have been working with 5S for a long period of time. This work does not really have an end but can constantly be developed. Since we expanded our warehouse, we have intensified our focus with support from a new internal project team,” says Malin. Investments in ISO 9001 and ISO 14001 certifications help KLINGER Sweden maintain high quality and environmental standards, creating a smooth operating environment. All these efforts culminated in the Healthy Place to Work certification from OneLab, an independent auditor that evaluates corporate environments for employee wellness using a three-step system of testing and monitoring.

A lifelong commitment

The KLINGER Sweden team is dedicated to maintaining these changes for the long term, having accounted for the ongoing effort required to retain certifications and employee testing:

- audits and inspections,
- subscriptions and medical visits,
- site maintenance and upgrades.

KLINGER Sweden considers a health-forward culture to be a valuable investment, since the health of employees directly affects the health of the organization. As Malin explains, “This is ongoing work. Everybody knows the employees are our best resource. They know that they are important to the company. That’s essential for engagement in the company, and for everybody here.”

Proactively addressing health and work environment concerns led to being recognized as a Healthy Place to Work by OneLab.



A spacious and organized warehouse, the result of KLINGER Sweden’s commitment to site improvements and the implementation of 5S principles, provides a safer and more efficient working environment for warehouse staff.



Malin Kahn, Business Controller at KLINGER Sweden

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> Malin Kahn, Business Controller at KLINGER Sweden

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