

Hoval

The Hoval Group magazine | 2023

insights



**SmartServices in focus:
Changing needs**

**Laying the foundations:
First-class training**



Dear readers,

Is our industry a law unto itself? Looking at the development of the heating market up until this summer, you would be forgiven for thinking so. While the threat of a recession loomed over many countries, and high interest rates resulting from significant rises in inflation put the brakes on investment, the renovation of heating systems remained ever popular. Since then, demand in certain countries has cooled off slightly. Nevertheless, we are convinced that the trend for renovating heating systems that are no longer efficient or environmentally friendly will continue, and will eventually gain traction again. For more than 20 years, there have been complaints that the large stock of outdated heating systems in Europe requires urgent replacement. There has been talk of a “sleeping giant” that is now waking up.

Environmental awareness among the population has increased, and there is a desire to become less dependent on certain countries for fossil fuels. These trends have received major reinforcement in the political sphere through legislation and subsidies, bringing about a boom in the renovation of heat generators. It remains to be seen whether governments will actually be able to achieve their ambitious targets, as the recent example of Germany has shown. If too many changes are made to legislation and funding policy, this can cause uncertainty and lead to decisions relating to the renovation of a heating system being deferred.

Climate change is a fact and it is well and truly time to take appropriate measures. When it comes to buildings, there is enormous untapped potential that we need to leverage. However, energy policy is a complex issue, so it is right and important that we have detailed discussions about how to achieve the targets. Remaining open to different technologies will undoubtedly be more productive than an excessively limited focus on specific technologies. And we mustn't forget that the only way to overcome climate change is through global measures, not local measures in a single country.

In recent years, the strong trend towards heat pumps has accelerated massively, placing major demands on both the trade and on manufacturers, since there is an urgent need for structures to be expanded. In most cases, international providers in the climate sector are currently able to close the supply gap at a faster rate than traditional manufacturers of heating systems. As a traditional supplier of heat pumps, Hoval is currently making significant investments in the expansion of the plants and the growth of the development team. We reported on this in the last edition of Insights. The excessively long lead times for certain models, as well as the fact that deliveries had to be rescheduled on too many occasions due to problems with sub-suppliers, have been a major challenge both for ourselves and our partners. I would once again like to formally apologise for these circumstances. The expansion of our production capacity is proceeding at a rapid pace and the situation will normalise soon.

Remaining open to different technologies is central to overcoming the challenges in climate policy. In addition to heat pumps, there are other systems that will play a fundamental part in climate protection in the future. These are technologies for which Hoval is very well positioned. We are proud of our strong position in the district heating sector, which is why we have reported on another exciting project in this edition, as well as on our subsidiary YADOS. But Hoval is also intensely focused on the area of hydrogen. Our current UltraGas® version is already H2-ready for 20% hydrogen and we are working hard to develop a solution for 100% hydrogen. This will make it possible to convert UltraGas® boilers of the current generation to 100% hydrogen in the future. We are therefore in an ideal position.

Given the shift towards heat pumps and the fact that major international air-conditioning equipment manufacturers are becoming increasingly active in our heat market, it is right to ask how Hoval will handle this new competition. A heat pump is an investment that is intended to offer many years of reliable service in a system with other products. Minimising production costs cannot and will not be the only factor. What matters is to have trust in the company and the people behind it so that customers can enjoy a

comfortable climate without worry over many years – not least because of our strong customer service team. Our new SmartServices, which are the subject of a report in this edition of Insights, are an example of how we can offer clear added value by pairing the online connectivity of our heat pumps with the expertise of our customer service team. These factors are far more significant for heating systems than for air-conditioning equipment. The Hoval family offers more than just outstanding products. Our customers can rely on us. That's why I am delighted that this edition of Insights once again reports on people at Hoval. We are proud of our apprentices – after all, they are our future. We are also proud of the fact that people such as Martin Woerz – who is the subject of an article in this edition – have been part of the family for many decades. Martin is right when he says, “Employees are responsible for 70% of a company's success.”

I hope you enjoy reading this edition of Insights. Find out more about the challenging projects that we have implemented with and for our customers, as well as about life at Hoval and much, much more.


Peter Gerner
Hoval Group Senior Management
Co-CEO

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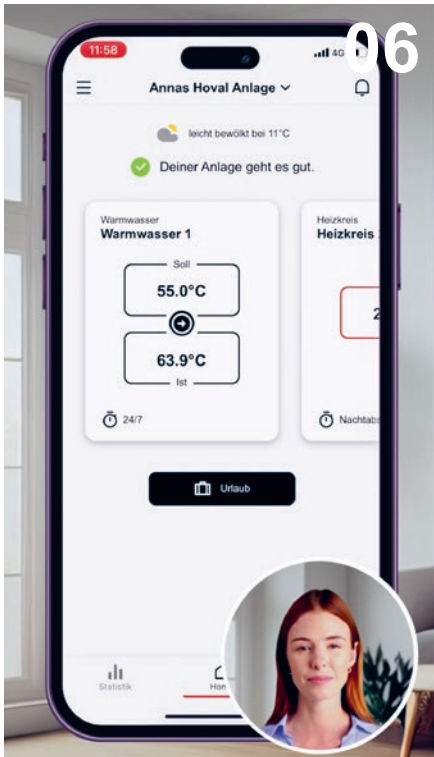
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Always on the move and heading for new solutions



SmartServices

For a comfortable climate

For more than 75 years, Hoval has been synonymous with convenient and comfortable solutions that inspire people every day. The secret behind the success of Hoval solutions is the trust that customers place in Hoval's innovative, high-quality products, as well as its smart, first-class service in the field of heating and climate technology.



Smooth and reliable operation of systems: for Hoval customers, SmartServices take care of it all.

Together with our customers, we have made our service packages even better. SmartServices from Hoval bring together in-person and digital services, combining conventional on-site maintenance with digital remote inspection. The connectivity of Hoval systems provides the basis for this solution. This online connectivity enables all of the values of our customers' systems to be monitored and optimised. Using digital diagnostics, our specialists can ensure smooth and reliable operation of heating systems as part of an end-to-end approach.

For a perfectly comfortable climate

With SmartServices, the system is ideally supported all year round and offers the system owner maximum convenience at all times. When digital maintenance takes place, the system's key operating parameters are read and analysed online. Customers then receive a status report. Through online maintenance, Hoval guarantees a sustainable and environmentally friendly service offering.

But SmartServices offer even more: a high level of operational reliability in the system can be guaranteed through seasonal measurements of the current situation taken over several hours. This not only conserves resources, but also saves money. On-site maintenance is generally completed every two years. This continues to be justified and is necessary in order to meet legal requirements, for example.

Hoval offers a range of services that ensure a comfortable indoor climate. Regular maintenance from the Hoval service team guarantees an extended service life for the units, in addition to fault-free operation. Heating and cooling systems will work tirelessly every day to regulate the temperature in a building.

The right service package for every need

With SmartServices, Hoval can offer the right service to meet every individual customer requirement. Based on their specific needs, system owners can choose from the "Basic smart", "Safe smart" and "TopSafe smart" packages. "Basic smart" includes on-site maintenance, remote maintenance, working and travel time for the Hoval service technician as well as incidental expenses and cleansing agents. The "Safe smart" service package includes these services as well as free fault repair 365 days a year. The "TopSafe smart" package adds free spare parts for heating systems. Whichever service package a system owner chooses, SmartServices offer them convenience and take away the worry. All IoT-capable products and associated services from Hoval are intended to improve functionality, efficiency and convenience. In addition to comprehensive services, Hoval actively embraces the development of IoT solutions for heating, ventilation and air-conditioning systems and will continue to support innovations in this field. Hoval focuses on the

development of intelligent technologies that enable remote maintenance and control of all systems. Sensors, data analysis, algorithms and more are used to reduce energy consumption. Naturally, the protection and security of customer data is given highest priority at Hoval.

Its commitment to innovation and customer service has made Hoval one of the leading companies in the heating and climate technology industry. With its comprehensive range of services and IoT-capable products, our company is also ideally positioned to meet customers' changing needs moving forward.



“The use of IoT technology in Hoval products and services demonstrates our commitment to offering customers innovative and sustainable solutions.”

Tom Felber
Head of Service, Hoval Group

	Basic smart	Safe smart	TopSafe smart
On-site maintenance*	✓	✓	✓
Remote inspection**	✓	✓	✓
Working/travel time	✓	✓	✓
Small material & cleansing agents	✓	✓	✓
Free daytime troubleshooting		✓	✓
Spare parts			✓

* usually every 2 years

** Prerequisite is a HovalConnect gateway with online agreement.
Remote maintenance takes place alternately with on-site maintenance for suitable heat pumps.

Overview of SmartService packages in Switzerland.

Enjoy the convenience that SmartServices offer.
Contact your local Hoval partners.

Intuitive access to your Hoval system

HovalConnect makes it possible

In this interview, Head of Business Development, Base Market, Dominik Bilgeri, explains the benefits of the HovalConnect app for end customers as well as the additional app features planned by Hoval for the future.

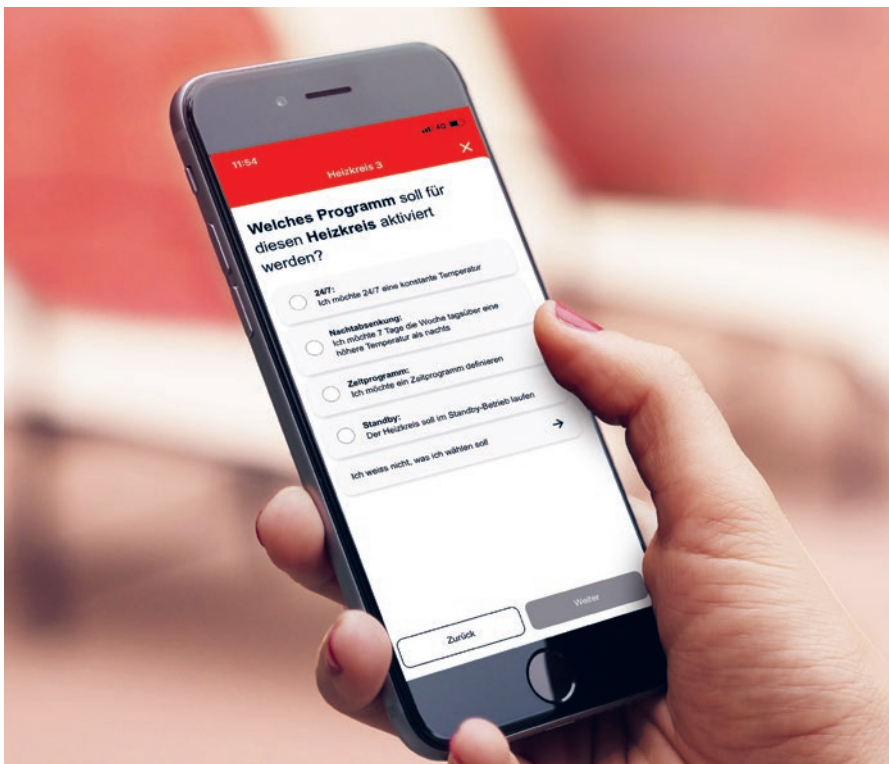
Hoval launched a new app in June 2023. What benefits does the new app offer for end customers of Hoval?

Dominik Bilgeri: In the future, Hoval intends to develop into even more of a solution provider. A Hoval solution is a combination of high-quality products and smart services. In the single-family home segment, the digitalisation

and networking of Hoval systems plays a key role, which is why the new HovalConnect app represents an important milestone on this journey. The new app allows system owners to achieve intuitive, state-of-the-art control of Hoval systems. At the same time, the app provides the basis for additional digital offerings from Hoval, including digital maintenance, remote fault repair and much more.

The HovalConnect app is intuitive and user-friendly. Can you give a specific example of this?

Dominik Bilgeri: We have simplified the programmes so that the operation of the app for end customers is even more intuitively designed. By analysing thousands of Hoval heating systems, we have found that over 97% of all system owners use only four programmes. Based on this analysis, we have focused the operating principle for the new app on these four programmes, which has significantly reduced complexity.



State of the art: the new app simplifies communication between users and Hoval experts.



“The new HovalConnect app provides the basis for additional digital offerings from Hoval, including digital maintenance.”

Dominik Bilgeri
Head of Business Development, Base Market

What plans does Hoval have for the new app and what new features and services can Hoval end customers look forward to?

Dominik Bilgeri: Hoval will continue to invest in the expansion of the new app. User feedback is continuously integrated into the further development of the app. We are already working on many new features and benefits in the app. A planned future version of the app will allow users to view maintenance reports and amend maintenance appointments. Hoval is also working on various issues in relation to the future of heat pump optimisation and energy management.

How is the HovalConnect app different from the simple control of Hoval systems offered by smart home or building management systems?

Dominik Bilgeri: HovalConnect focuses on the most important functions to ensure simple and intuitive control of Hoval systems for system owners. As such, HovalConnect is not a tool for charging energy data, and it is not a replacement for a building management system or a professional energy management system.

The HovalConnect app has been developed for single-family homes. What alternative solutions does Hoval offer for customers in other market segments?

Dominik Bilgeri: For applications in blocks of flats and industrial buildings, Hoval is offering a newly developed solution from 2023.

The HovalSupervisor cloud enables technically skilled business customers to visualise their systems, obtain detailed technical reports and access technical parameters.



Customers now have an easy, intuitive and modern way to control their Hoval system from their smartphone.

Shaping the future

Training for young people has always been highly valued at Hoval.

Vocational training has been a fixed and successful part of life at Hoval for 77 years. Around ten percent of employees at the headquarters in Vaduz are apprentices. But in Germany, Austria and Switzerland too, apprentices at Hoval are successfully trained and provided with the skills they need in their day-to-day work.

Vocational training at Hoval inspires, encourages, challenges and shapes people – and offers the promise of success. Anyone who has just graduated from school and is looking for practical experience can start their career at Hoval. But what makes the process of choosing a profession at Hoval so special? One factor is the size of the company. Whether at the headquarters or at sites in Switzerland, Germany or Austria, the company and working atmosphere is always friendly and people know each other. What's more, Hoval offers a wide range of opportunities for apprentices who want to develop their skills and expand their knowledge.

A range of apprenticeships on offer

Hoval establishes a foundation and offers apprentices the opportunity to achieve further development in areas such as office work, logistics, IT, mechanical systems and design. From the very first day, apprentices are valuable team members and can grow in their role. They receive support throughout from experienced colleagues who make the learning process varied, interesting and sustainable. Hoval also offers a welcoming environment that enables apprentices to practice their social skills and take solution-oriented actions.

“Hoval offers a stable and secure working environment – not just for experienced employees but also for young people. Everyone can make a meaningful contribution in a responsible role,” says Thomas Graf, Head of Hoval Training in Vaduz.





The Hoval apprentices spent an exciting introductory week in Burgdorf and made friendships for life.

Thomas Graf completed his own apprenticeship at Hoval around 30 years ago. In addition to his role as Head of Training, he is the singer and frontman of the band Meg-awatt. It takes a great deal of passion and dedication to manage both of these demands. And that is exactly what Thomas Graf lives for. Because no matter what he is doing – whether it's making music or training apprentices – he always does it with great commitment and enthusiasm. “I get a huge amount of enjoyment from both and I have a lot of fun doing them.”

Hoval encourages its apprentices to become part of the Hoval family and engage in professional development. It employs over 2500 people, who work hard every day to achieve the corporate goals. “At Hoval, the vision is to create a better future together. As part of the Hoval family, young people and older people alike can contribute to this vision,” emphasises Thomas Graf.

First career steps

Any apprentice can quickly become a highly qualified and in-demand worker with an impressive range of skills. Participation in international competitions is also encouraged, as the example of Tobias Büchel shows. After successfully completing his apprenticeship, his ambitious goal is to become a world champion.

Hoval wants all young people to grow in their role and take pride in being part of the company's success story. The Group needs committed employees who are dedicated to their role and can demonstrate initiative and passion. In principle, an apprenticeship in the industry opens up many opportunities. Hoval also offers opportunities for people who want to help bring about a better future and make a difference through their enthusiasm.



“After my apprenticeship at Hoval, I want to win the WorldSkills in milling and become the best miller in the world.”

Tobias Büchel
Multi-skilled mechanic

Hoval apprenticeship in Liechtenstein

At the Hoval headquarters in Vaduz, apprenticeships are offered in seven different areas: IT – application development and platform development, office, design, logistics, mechanical systems, plant and equipment engineering and refrigeration system assembly. Both the apprenticeship and the selection process are highly structured. The annual “Zusagetag” (Acceptance Day) is also celebrated on 2 November.



Hoval apprenticeship in Switzerland

In Switzerland, Hoval offers apprenticeships for young people seeking commercial training. The programme offers apprentices three years of learning and experience with the option to complete a vocational diploma.

Hoval apprenticeship in Austria

In Austria, Hoval offers apprenticeships in business logistics, office clerk work and IT. The three or four-year training programme offers apprentices individual development and career opportunities.



Hoval apprenticeship in Germany

In Germany, Hoval offers apprenticeships in wholesale trade and foreign trade as well as e-commerce. The training in these professions takes three years.

The introductory week – an adventurous way to start working life

When apprentices join Hoval, they can expect to encounter new people, a new environment and much more besides. Some may feel nervous before their first working day, and this should not be overlooked. Hoval pays a great deal of attention to this important early stage. This is why all apprentices in Liechtenstein, Switzerland, Austria and Germany start their apprenticeship year at Hoval with a joint introductory week. For the new apprentices, this is an exciting way to begin a new chapter in their lives.

The focus of this year's introductory week was on enabling all the apprentices to get to know one another, as well as on teaching some important values and discovering the region around Burgdorf in the Swiss canton of Bern.

The 47 apprentices and their three accompanying persons enjoyed some varied daytime activities and fun evenings together. Friendships were made and the new apprentices were successfully integrated into the Hoval vocational training team.



“Hoval offers a stable and secure working environment for young people, where everyone can make a meaningful contribution in a responsible role.”

Thomas Graf
Head of Training at Hoval



Former apprentices meet up again at Hoval.



A visit to the Hoval premises brings back memories.

Former apprentices pay a visit

Early this year, a group of former Hoval apprentices from the classes of 1940 to 1947 returned to their previous place of work for one day. The 35 men and women came together in Vaduz after accepting an invitation from the Group Senior Management.

These enthusiastic and curious former members of the Hoval family were taken on a factory tour at the site in Vaduz, where the training workshop met with particular interest. They were able to reflect on their apprenticeships as they enjoyed lunch together and took part in the afternoon programme of events.

The occasion became something of a journey into the past, with the one-time apprentices sharing their experiences and treating each other to numerous anecdotes.

The history of refrigeration

Chemists, engineers, physicists and even brewers



“To produce heat in the greatest cold is no difficulty at all, but to produce cold in great heat demands much skill”

Georg Christoph Lichtenberg
(1742–1799)

The history of refrigeration technology stretches back into antiquity, when people brought ice and snow back from the mountains and used it to cool their food. But it was not until the 19th century that refrigeration technology became an important branch of industry and a relevant part of daily life.

The first attempts to artificially generate cold temperatures were made in the 18th century. In 1748, William Cullen conducted an experiment whereby he placed mercury in a vacuum and achieved a reduction in temperature. In 1805, Michael Faraday designed a cooling unit based on the evaporation of ammonia, but due to the high costs involved and the difficulty of mass production it never became widespread.

German researcher Carl von Linde introduced ammonia as a cheaper and safer refrigerant in the 1870s. His invention of the refrigeration machine laid the foundations for modern refrigeration technology. However, one problem was the seal between the piston rod and cylinder housing.

Revolution in the brewing industry

In 1873, Gabriel Sedlmayr the Younger recognised the potential of Linde's technology and financed a new machine that achieved a breakthrough. Sedlmayr's brewery was now able to brew beer and produce natural ice all year round. Linde applied for a patent for his compressor in 1876, and by 1900 some 21 breweries in Munich were producing their own artificial ice using Linde units.

Many more refrigerants were developed in the 20th

century, though chlorofluorocarbons (CFCs) were banned in the 1980s due to their harmful effect on the ozone layer. Today, more environmentally friendly refrigerants are used, such as hydrocarbons and hydrofluorocarbons (HFCs).

In recent decades, refrigeration technology has developed in a range of sectors – from medicine to aviation. In the medical field, refrigerators are used to store vaccines and other drugs, while air-conditioning units and cooling systems are used in aviation to maintain a comfortable temperature during flights.

Refrigeration technology has undergone significant development over time, becoming an important industry and a major part of daily life. As the protection of the climate grows in importance, efforts are being made to push the development of more environmentally friendly refrigerants and more efficient cooling systems.



Hoval brine/water heat pump, around 1980.

generation technology

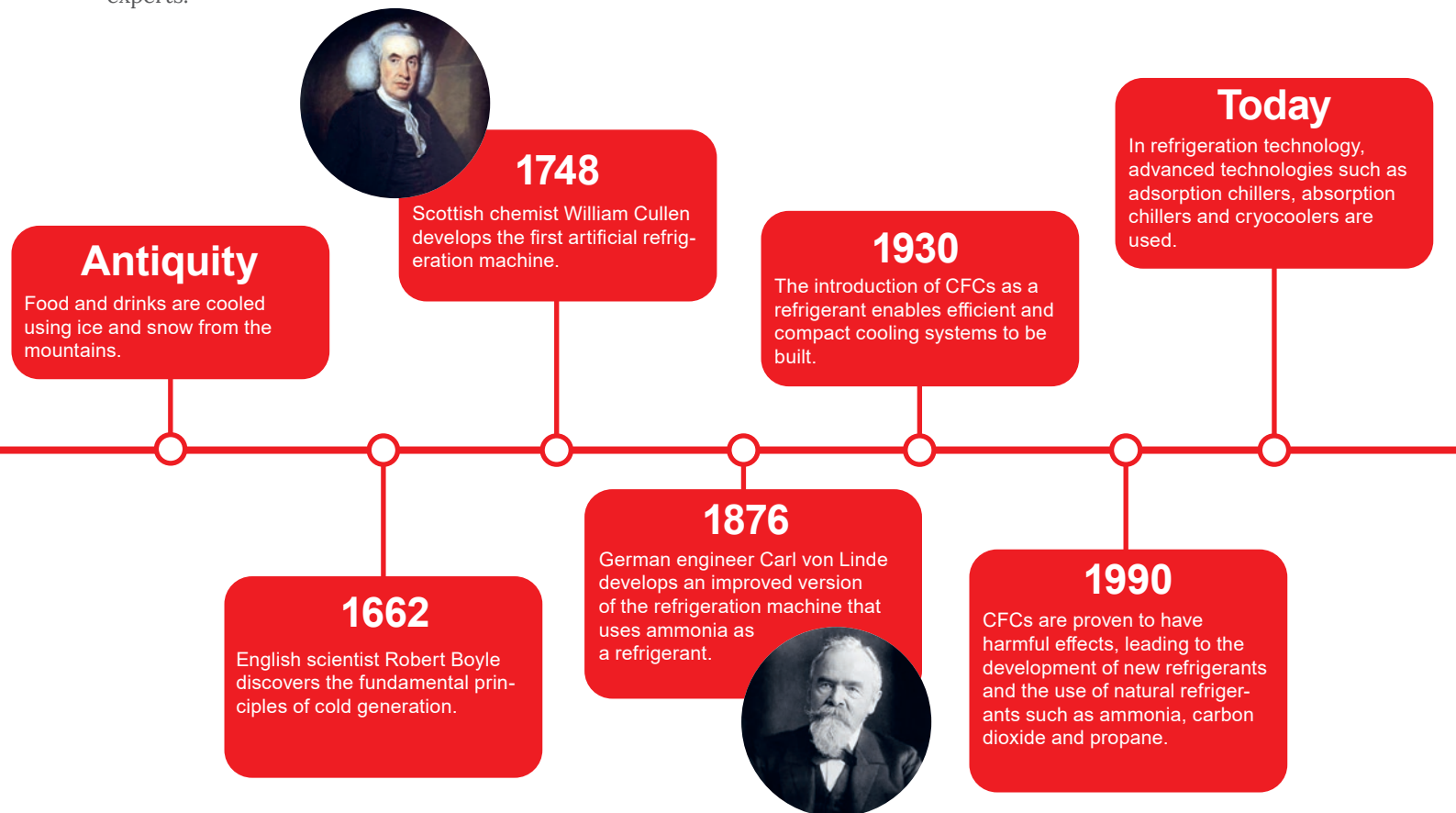
s were involved in its invention.

Gyula Szokody and the history of heat pump technology at Hoval

Gyula Szokody acquired a unique perspective in the Swiss heat pump industry. He was one of the pioneers who made a crucial contribution to the professional community of Swiss small heat pump manufacturers.

From 1974 to 1995, he worked at Hoval, where he promoted modified chilled water systems as heat pumps for larger-scale heat demands. Under his leadership, a number of innovative heat pump projects were completed, including a system for 40 flats in Liechtenstein and a groundbreaking heat pump system at the Obermeilen sewage treatment plant on Lake Zurich. Hoval also brought the “WW-Automat” fully automated heat pump system onto the market in around 1975.

Szokody’s work paved the way for highly efficient heat pump systems and continues to inspire the next generation of experts.



F-gases regulation: the trend towards natural refrigerants is being accelerated following a decision of the European Parliament on the amendment of the F-gases regulation. This goes hand in hand with a gradual reduction in the volume of synthetic refrigerants available on the market, with prohibitions on their use and sale also being enacted. This is why Hoval is already using the natural refrigerant propane in its Belaria® pro series.

Strong women need

Successful tradeswomen show that gender is no obstacle for one of them.

Many women are prevented from embarking on a career in engineering due to different stereotypes and social expectations. But early contact and appropriate training can play an important part in generating interest in the field and removing these barriers. One woman who has succeeded in the male-dominated world of engineering is Petra Buresch, who works at Hoval as a customer service technician.

Petra's interest in engineering comes from her father, who worked with heavy currents as an electrical engineer and inspired her fascination for engineering at an early age. As a child, she wanted to help out her father with manual work rather than assist her mother around the house. She noticed that many women around her relied on men for even the simplest technical tasks, and she resolved never to fall into this pattern. Driven by a great desire to stand on

her own two feet, she sought a career in engineering and eventually joined Hoval.

Promoting equality in engineering

While her personal drive was crucial to her success, she is also aware of the importance of early training as a way to break down stereotypes and promote gender equality in the field. She believes that schools should offer more practical training in engineering and encourage girls to consider a technical profession. "Programmes such as project days, shadowing in technical professions and mentoring programmes can help young women to develop an interest in this area and build confidence in their skills," says Petra Buresch. "By offering these opportunities, we can do away with the myth that women are not as good as men in technical fields."

Womanpower in manual trades: strong women inspire strong girls.



ed – not just at Hoval

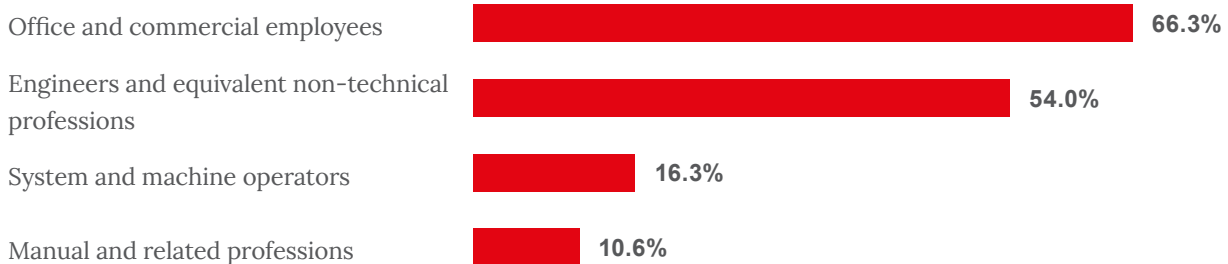
ect. Customer service technician Petra Buresch is



“It’s crucial that women are encouraged to take up a technical career, as gender diversity in this field opens up different perspectives and brings about innovation and higher productivity.”

Petra Buresch
Customer service technician

Labour market participation of women by profession in 2021



© German Federal Statistical Office (Destatis), 2023

Continuing to encourage girls

Petra also points out that women are just as capable as men. “It’s important to ditch these myths and promote gender equality so that more women are encouraged to take up a technical career,” she emphasises. And: “It’s crucial that women take up a technical career, as gender diversity in this field opens up different perspectives and brings about innovation and higher productivity.” If young women choose a technical career, she believes this not only benefits the individual but also society as a whole. By offering practical training and support, schools can help girls to take up a technical career, break down stereotypes and promote gender equality. As a result, we can hopefully expect more women like Petra Buresch to excel in this field and make an invaluable contribution to society.



Technical apprenticeships are becoming more popular among women.

Refining wine

At Winzer Krems, an indoor climate solution maintains ideal storage conditions in the fermenting cellar

In the newly built complex at Winzer Krems, an indoor climate solution from Hoval creates the ideal production and storage conditions for the company's wine by maintaining constant temperatures and optimum air humidity.

Founded more than 80 years ago, Winzer Krems has become Austria's largest producer of quality wine. Over an area of around 4000 m² at its address at Sandgrube 13 in Krems, it has built a new fermenting cellar, as well as Europe's most advanced wine bottling plant and a new bottle warehouse. With a total investment of over 30 million euros, it is the largest project in the history of Winzer Krems. The goal is to guarantee the quality of the wine – as well as sustainable economic management – both now and in the future in view of the climatic changes that are already being felt. Following demolition of the old hall complex, the new wine cellar was completed in time for the 2020 grape harvest. The ultra-modern bottling plant was assembled in late 2021. Hoval is making a contribution to this pioneering technology: a total of 22 TopVent® units for heating, cooling and dehumidification are installed in the new hall with green roof. This hall has large windows in the western facade to provide plenty of daylight.

Perfect conditions for first-class wines: winemaker uses innovative indoor climate solutions from Hoval.

Sandgrube 13

Left to right: customer service technician Daniel Labenbacher, Managing Director of Winzer Kreams Ludwig Holzer, Operation Manager at Winzer Kreams Clemens Fuchs, Head of Product Market Management for Climate Technology at Hoval Christoph Steinhäusler.

Production hall: top standards for hygiene and working conditions

In addition to a comfortable indoor climate for employees, hygiene standards in the 2000 m² bottling plant were essential to this winemaking cooperative. “We fill 15000 bottles an hour with Grüner Veltliner and other quality wines. Clean air is particularly important in this regard,” says Clemens Fuchs, Operation Manager at Winzer Kreams. The TopVent® units distributed over the ceiling maintain a comfortable temperature of 20°C and keep air humidity in the desired range. The major advantage is that only one system is needed to heat and cool the hall. The intelligent technology makes it possible to control the temperature over an area of 900 m² while also regulating air humidity with just a single unit. In addition, the high heating and cooling capacity of the TopVent® system makes it possible to reduce the number of units needed. Winzer Kreams therefore benefits from maximum comfort at a low level of expense.

Recirculating air system for optimum wine storage at constant temperatures

The total capacity of the fermenting cellar at Sandgrube 13 is around 13 million litres of wine – 70% white wine and 30% red wine. To ensure perfect storage conditions, a



Winzer Kreams is on course for success with record exports.



Toasting a successful project.

constant temperature of 17 to 18°C must be maintained. “That’s easy in winter, but in summer we need sophisticated technology,” says Clemens Fuchs. In the 16-metre-deep cellar, the right climate is also crucial to the production processes for the wine varieties. And the system has to maintain the right air humidity so that mould is given no chance to grow. Installation company Getec had overall responsibility for the building technology in this new-build project and relied on the solutions expertise of Hoval. The TopVent® recirculation units distribute the air fully automatically using the integrated Air-Injector. The indoor climate units were positioned at specific points under the ceiling and divided into six control zones. This creates a flexible, custom system solution that maintains the right conditions in every area.

Heating, cooling and ventilation with central control

The engineers involved appreciate the benefits in the new building: “Everything was planned and implemented perfectly,” confirms Clemens Fuchs. The central controller for the six control zones for the bottling plant, cellar and warehouse is located in the middle of the building. This ensures the pipework is kept short while making operation and maintenance of the system easier. The control solution is undergoing continuous optimisation based on initial practical experience. “Hoval takes a very solution-orientated approach and quickly finds a way to achieve a goal, even for individual requirements,” says the Operation Manager of the prestigious winemaker, who is very satisfied with the collaboration. “The communication channels are short and there is always someone available to advise when needed,” he says, summing up the project following completion.



Winzer Krems has put Europe’s most advanced bottling plant into operation.



TopVent® THC-9

- Application in high-ceilinged halls
- Heating (with connection to a hot water supply, 4-pipe system)
- Cooling (with connection to a water chiller, 4-pipe system)
- Recirculation operation
- Air distribution with adjustable Air-Injector
- Air filtration (optional)
- Decentralised system: high plant reliability
- Simple engineering



Sustainable biomass solution

Neukirch-Egnach on Lake Constance in Switzerland is home to the headquarters of flower grower Blumen Gschwend. Viktor Gschwend has managed the company for 34 years. Until autumn 2021, the house, the sales and office buildings and the greenhouses were heated with oil. Since October 2021, a wood pellet boiler from Hoval has been providing heat. As Viktor Gschwend says: “Heating with renewable resources is a wonderful feeling.”



Viktor Gschwend, Peter Stäheli and Fabian Burkhalter are delighted with the successfully completed project.

When you walk through Viktor Gschwend's nursery, you imagine yourself to be in the Garden of Eden. Over a space measuring 4000 m², he propagates flowers and sells potted plants of all shades. Here, you can discover all kinds of secluded corners with seating and countless gorgeous details. It's clear that Viktor Gschwend loves what he does. In addition to the huge numbers of plants, the property includes Viktor Gschwend's house, which measures around 200 m², as well as the 110 m² sales building and greenhouses covering a total area of 650 m² which house the plants in the winter months from October to April. For 35 years, these buildings were heated by a Hoval oil heating system with an 18000 litre steel tank. "It served us well to the end," says Viktor Gschwend. Nevertheless, he was convinced that the time had come to switch to a modern pellet heating system. Peter Stäheli from Eugster Haustechnik AG, the company that planned and installed the new heating system, explains the decision: "We also considered gas as an alternative. But all the facts were pointing towards wood pellets." Fabian Burkhalter, Product Manager at Hoval, adds: "There are many benefits associated with wood pellets. They are sustainable and their price is more stable than fossil fuels. This is just one reason why the pellets market recorded growth of 46 per cent last year. And the high sales figures are continuing."

The trustee could not believe his eyes

The new Hoval system was commissioned in October 2021 after an installation phase of just three weeks. A BioLyt wood pellet boiler and two EnerVal buffer storage tanks were installed, each with a capacity of 1000 litres. The

adjoining room that previously housed the oil tank is now used as a storage room for wood pellets. This is where the E3 Pellet Mole operates – a supply solution that enables even distribution and extraction of pellets in a relatively small space.

And what has been Viktor Gschwend's experience after the first winter? "Previously, I used around 20000 litres of heating oil every year. That cost a lot of money. Today, I am making significant savings." When asked for numbers, he laughs. "Yes, my trustee called me and asked me if the energy costs I had sent him were really accurate. Compared with the current prices of heating oil, they were about 10000 Swiss francs less."

Hoval delivered despite nationwide bottlenecks

Peter Stäheli from Eugster Haustechnik AG has also noticed the fact that wood pellet systems are enjoying popularity due to stable and low heating costs. "We needed the boiler for Viktor Gschwend before the winter. But nobody except Hoval was able to deliver in such a short time. Hoval has once again proven itself to be a reliable partner in terms of both products and service." So does that mean everything went according to plan? This raises a smile from Peter Stäheli and Fabian Burkhalter, who implemented the project. "Well," says Peter Stäheli, "the size of the boiler room was a real challenge in terms of the installation. Not least because a new heat pump boiler for domestic water also had to be installed in the same room. But the site is ideal for this. Thanks to the high temperatures in the room, the heat pump boiler achieves a very high degree of efficiency."



The greenhouses at Blumen Gschwend cover a total area of 650 m².

Energy-efficiency renovation



Green heating for Germany's only island in open sea: sustainable heat transfer project ensures comfortable temperatures on Heligoland.

Efficiency-optimised heat transfer stations have been installed in Heligoland town hall.

In this energy-efficiency renovation of an existing building, Hoval subsidiary YADOS supplied the energy-efficient building connection stations.

Heligoland is Germany's only island in the open sea, located around 70 kilometres from the mainland in the middle of the North Sea. Known for its red sandstone cliffs, the island is one of Germany's most popular holiday destinations. Every year, hundreds of thousands of holidaymakers – as well as nature lovers on day trips – enjoy the mild oceanic climate and natural diversity of Heligoland. The island puts in place vital climate protection measures to preserve its unique natural treasures.

The issue of sustainability became particularly important in 2012 and was integrated into the municipal climate protection concept for Heligoland. The reasons are clear – the consequences of global warming are creating huge challenges for the island. The loss of land caused by rising sea levels, the erosion of natural coastal protections and the salinisation of fresh water sources are threatening to take away the islanders' livelihoods. The integrated municipal climate protection concept stipulates that the existing potential to increase energy efficiency should be utilised. This meant that the energy-efficiency renovation of the town hall focused on ensuring a sustainable and economically reliable heat supply to the building.

Reduced return temperature ensures stable and efficient district heating network operation

Heating networks use the flow of fluids to transfer thermal energy from the generators to the consumers, where it must be available at the right time, in the right quantity and in the right place – and all while minimising losses. One way to gain leverage is to ensure a wide spread between the flow temperature and return temperature, with the return temperature kept as low as possible. This increases generator efficiency and minimises the flow rate while reducing thermal return line losses and the electrical power required from the pumps. The lower the flow rate, the smaller the pipe cross-sections and pump sizes can be, as the required pump differential pressure reduces as the flow losses fall. At a flow temperature of 80°C and a reduction in the return temperature from 55 to 40°C, the flow rate of the hot water is already reduced by 30%. In addition to a lower energy demand, the installation materials are subject to a weaker thermal load.

Taking account of time and comfort requirements

Flexible YADOS transfer stations are the connectors between the primary heat circuit in the district heating network and the secondary heat circuit in the building heating system, guaranteeing a reliable and demand-based transfer of heat energy provided from the network and a maximum reduction in return temperatures. In the modernised town hall on Heligoland, this task is undertaken by a GIRO 1I-2H district heating station. With optimised regulation of generator and consumer, the heat energy provided from the

network is transferred in a pressure-, temperature- and demand-specific solution to the building system, which is separated hydraulically via a plate heat exchanger (indirect connection). Integrated direct digital control (DDC) systems take account of both the outdoor temperature and the individually selected time and comfort requirements on the consumer side in order to identify an exact flow temperature.

With a flow temperature of 55°C and return temperature of 35°C, two heat circuits, the static heating system and the ventilation system are supplied from the GIRO (70 kW), which has a building-specific configuration. At a primary-side flow temperature of 105°C (cold season), the overall system achieves return temperatures of 40°C all year round. This is good for network efficiency, saves primary energy and – last but not least – contributes to climate protection on this little island.



YADO|GIRO / TransTherm® giro heat transfer station

Further advantages of YADO|GIRO / TransTherm® giro heat transfer station

- Universal district heating connection
- Heating connection either at top or bottom as required
- Domestic water preparation already integrated into the station
- High-quality insulation system with 100% thermal insulation
- Low level of assembly and service work required

Helping to shape Hoval

Martin Woerz has worked at Hoval for more than 50 years. He was involved in the development of the first heat pumps and has initiated many partnerships as a member of the senior management at Hoval Switzerland. In this detailed interview, he explains what keeps him at Hoval and out of retirement.

Mr Woerz, how did you come to be in the heating and ventilation industry?

Martin Woerz: I grew up on a farm in the small municipality of Sevelen in Eastern Switzerland. After my first apprenticeship as a machine mechanic, I earned a little money on the side servicing cars. I then wanted to go to Zurich so I could study there. So I attended the “Abend-Technikum” (editorial note: school of engineering offering classes in the evenings and at weekends). While training at the Abend-Technikum, I met my future wife, who came from nearby Meilen, so I was keen to stay in the Zurich region.

When I was looking for a job, I went to the nearest company in Meilen and asked whether I could do commercial training

there. The company that I had arrived at by chance was Hoval – and I have now worked at the company for more than 50 years.

After I started working at Hoval as a material planner in sales, I was able to switch to engineering after two years. I gradually climbed the ladder: first I became manager of the Air-conditioning department, and by the end of the 1980s I had joined the senior management team of Hoval Switzerland, managing the Engineering and Marketing areas.

Were you involved in the heat pump market at that time?

Martin Woerz: Yes indeed! We were selling heat pumps as far back as the 1970s. The first units were carrier chillers, which we used as heat pumps. I remember it well: one of the first heat pumps, with an output of about 80 kW, was installed in the nursery school in Balzers.

After years working with in-house and purchased heat pumps, in around 2003/04, I had the task of looking for a new heat pump partner.

I advised the senior management team that we collaborate

Training the staff at the Hilsa exhibition stand in Zurich in 1996.





1982: In more than half a century at Hoval, Martin Woerz (right) has recorded some impressive achievements.



“At Hoval for 50 years and married for 50 years – I am perfectly happy.”

Martin Woerz
Head of Development, Comfort Ventilation

with a partner, which then grew into a joint venture with both parties having a 50% stake. When I moved to the site in Vaduz twelve years ago, I continued working on the development of heat pumps.

In 2015, you moved to the residential ventilation business area. How did that come about?

Martin Woerz: The Head of Development at HomeVent® had been absent for a long time. Based on my prior experience in the area, I took over as a formality and eventually stayed in this role for five years. I now work in the department two days a week.

What has kept you at Hoval over the years?

Martin Woerz: Peter Frick from the management team let us get on with the job and placed his trust in us. In turn, this boosted our confidence in our own skills and turned us into a strong company. Enjoying what you do is obviously important too.

There were times when a headhunter was calling me every month to tempt me away. But for me, it was always about enjoying the work and not just about money. I think that is the essential thing about work: you have to enjoy it, and then you will generally get on better. I have

sometimes travelled 1000 km in a day, to our Austrian site in Marchtrenk, for example, and then back to Switzerland. Occasionally, I have been to our joint venture on a weekly basis, where I have monitored the production process.

Over time, I became involved in the development of heat recovery units, storage tanks and calorifiers. I was also responsible for control systems for a time. I gave a lot of presentations to builders, architects, engineers and the Hoval sales team. When I think back, I have worked in every area of the company except Finance and HR.

In general, I really enjoy working with other people. At exhibitions and so on I am usually standing front and centre – I have always enjoyed that. In my view, it is crucial that employees are seen as a company's most important asset – after all, they are responsible for about 70 per cent of a company's success. You have to manage employees in the same way that you manage a football team: you need to lead them and motivate them.

How has Hoval developed over the course of your career?

Martin Woerz: Hoval always had a good reputation and good products; the company is always at the cutting edge technologically. It has remained a family business even though it has grown continuously. The company has not been sold – it is independent, which is no doubt because of the owning family. Hoval follows the trends, such as with the aluFer® pipe, MultiJet or solar collectors, and continues to bring out innovative solutions.

What do you see as the biggest challenges for the heating and ventilation industry?

Martin Woerz: Skilled staff will be our biggest problem in the economy – it is likely there will be even greater shortages. That's why the goal now is to develop products that require "no" specialist staff, particularly when it comes to

installation. For that reason, it is important for us as a manufacturer to make products that are self-installing to some extent. That is one vision, of course.

At Hoval, we are on the right track with our products. But there are two aspects we need to keep in focus: simple installation and operation.

What advice do you have for anyone who wants to make a successful career in the heating and ventilation industry?

Martin Woerz: You have to enjoy making things and demonstrate commitment, then things will work out by themselves, whatever industry you are in. Valuing every individual in a team is another relevant factor. It is also important that you engage in continuous training and development, because standing still means going backwards.

What makes Hoval different from other companies in the heating and ventilation industry, and what are its biggest strengths for the future?

Martin Woerz: The friendly atmosphere is undoubtedly what makes the difference – at many other companies, that doesn't exist. I think its strength for the future is in being innovative and taking the initiative. A company can quickly destroy its reputation, but it takes a long time to build it up. So you always need to be transparent too. As long as Hoval is a family business, I have a lot of confidence.

When you look back at your career, what makes you most proud?

Martin Woerz: I have been at Hoval for 50 years and married for 50 years – so I am perfectly happy.



“Employees are responsible for 70 percent of a company's success.”

Martin Woerz
Head of Development, Comfort Ventilation



District heating hyp



In the German-speaking world, local and district heating specialist YADOS is considered a pioneer in heat technology. Based in Hoyerswerda in Germany, the company has been part of the Hoval Group since 2016 and is on a strong path to growth. Pictured are the company headquarters in Hoyerswerda.

YADOS products are successfully used across Germany and in many European countries. As a Hoval subsidiary, it offers the perfect complement to its parent company's systems and solutions expertise – including when it comes to the guiding principle at Hoval: “Responsibility for energy and environment”.

In this interview, Managing Director Frank Stiehler explains the key issues and challenges faced by YADOS in the district heating sector.

What was it that made YADOS decide to specialise in district heating, among other areas?

Frank Stiehler: For YADOS, it was clear very early on that district heating networks would play an increasingly important role in the energy transition, as they are flexible when it comes to integrating both renewable and conventional energy sources and generator technologies. Sure enough, district heating has since become an indispensable part of a successful energy transition in the heating sector: the traditional energy suppliers are continuing to expand their heating networks, and the same thing is happening at a municipal level.



Managing Director Frank Stiehler.

...e attracts attention

What are the key challenges faced by YADOS when it comes to planning and implementing district heating systems?

Frank Stiehler: The transformation of the heat supply is confronting planners, heating engineers, suppliers and HVAC companies with new systems, new requirements and complex processes. There is a great deal of uncertainty because the necessary theoretical and practical knowledge of district heating is not yet sufficiently established in large parts of the industry. We can sense that at YADOS – the queries in the project business are mounting up. For us, this results in a much greater expenditure of time, which we have to manage alongside our daily business.

What is your approach when assessing the feasibility of district heating projects in different contexts?

Frank Stiehler: In district heating projects, you always need to consider the entire “closed” system, because all integrated components – from the generators to the heat transfer stations – must interact in an optimum manner to ensure stable and economical operation. At the same time, district heating networks are always individual solutions. They differ in terms of their structure, the generator technology used and the method of heat distribution and storage, depending on prevailing local factors. This means that the knowledge, experience and training of the field staff are crucial when it comes to providing an initial, authoritative assessment. From this early stage, it is possible to tell whether a project is feasible in its intended form or whether any technical and, if necessary, structural adjustments will need to be made. Compliance with the applicable technical standards and legislation, as well as production-related limitations, is ultimately assessed and defined in coordination with technical in-house staff and the Production department.

Can you give a specific example of a district heating project?

Frank Stiehler: As one example, we built the new district heating transfer station for the University of Rostock in three sections because the access opening in the space and the tunnel arch was too small for the new system, with an average ceiling height of only 2.5 m. The associated heating distributor, which needed to fit in a space of 2.4 m², was

also manufactured and supplied as a split module. There were then no problems bringing in, assembling and commissioning the system (sections).

As I have said, most of our projects are individual solutions. In larger projects, we are very familiar with the local, technical and demand-related requirements and produce customised, property-specific components according to precise planning specifications. Renovations of existing buildings also often present very specific challenges, but we are able to take a flexible and solution-orientated approach.

What type of energy sources do you recommend for district heating systems and why?

Frank Stiehler: One of the strengths of heating networks is the integration of different heat generators and energy sources. Renewable energies, such as current turned into heat as in Power2Heat, can also be fed in, as well as waste heat from cogeneration plants or industrial processes. In principle, it seems important to me to use systems that are open to the possibility of renewable energy sources in all cases. Natural gas will continue to play a role in the heat supply. And this is a good thing, because combustion technologies that are tried and tested and highly developed – particularly in conjunction with cogeneration – make optimum use of primary energy and achieve maximum efficiency.

How does YADOS guarantee the reliability and efficiency of district heating systems, particularly in the planning and installation phase?

Frank Stiehler: District heating systems achieve their optimum output level through the intelligent interaction of all integrated components. This is achieved when the planning process and component selection implement the specific requirements for the subsequent supply system in an effective manner. This is another case in which the expertise and continuous training of our employees ensure successful implementation.

To some extent, we can adopt supplier-side technical requirements in advance through configurators, which access a heating network database and automatically apply the saved parameters, such as the flow temperature. This minimises the possible risk of faults and

simplifies the implementation of the Technical Connection Conditions (Technische Anschlussbedingungen – TAB) or Technical Connection Requirements (Technische Anschlussvorschriften – TAV).

Can you explain the importance of involving communities in district heating projects and how you build relationships with stakeholders?

Frank Stiehler: In communities, the idea of a district heating project can arise for a wide range of reasons. For example, there may be a solar park or wind farm that is not eligible for funding and needs to continue being used economically as a “heat supplier” in a Power2Heat concept. It may be initiated by a farmer operating a biogas plant. Or the idea may just be the result of an informal group meeting. For us, the most important thing is to become involved at the earliest possible stage. This is because any wrong decisions at the start of a project can be very expensive if they need to be rowed back during the project itself. It is also crucial for everyone associated with the project, including the parties who will subsequently be connected to the system, to be involved from the outset and to be kept informed of project progress. It takes time but it is essential to the



Assembling control panels for Hoval heat pumps in the new Plant 2 of YADOS GmbH.



Assembling an energy centre.

success of the project.

A big topic is to involve communities and any stakeholders with the goal of fostering good collaboration that is based on trust and will ideally last for years to come. In fact, “relationship building” makes up two thirds of our work when implementing municipal heating networks. Our reputation in the market is a valuable tool for opening doors in this regard.

How do you and other responsible persons at YADOS keep up to date on advances in district heating technology and practices?

Frank Stiehler: At YADOS, a large part of the training is provided through internal sessions that focus on different topics, such as engineering, legislation and standards. Employees also take part in regular external training. In addition, every employee should ideally show initiative in engaging in continuous professional development and understanding state-of-the-art technology. Furthermore, through close collaboration between Development, Production and Sales and manufacturers, planners and installers, we stay up to date on the latest market and technology developments and new requirements and can adopt and implement these



Heating modules of the Belaria® heat pump before shipping to Marchtrenk.

also continues to offer a comparatively environmentally friendly supply solution due to the fuel utilisation rate of over 80 per cent and simultaneous production of current and heat.

In addition, we will focus on consistently improving and developing our heat transfer stations. Heat transfer technology will continue to be an efficiency factor in district heating systems, contributing to the achievement of low return temperatures. And this is crucial to the precise and economical operation of heating networks.

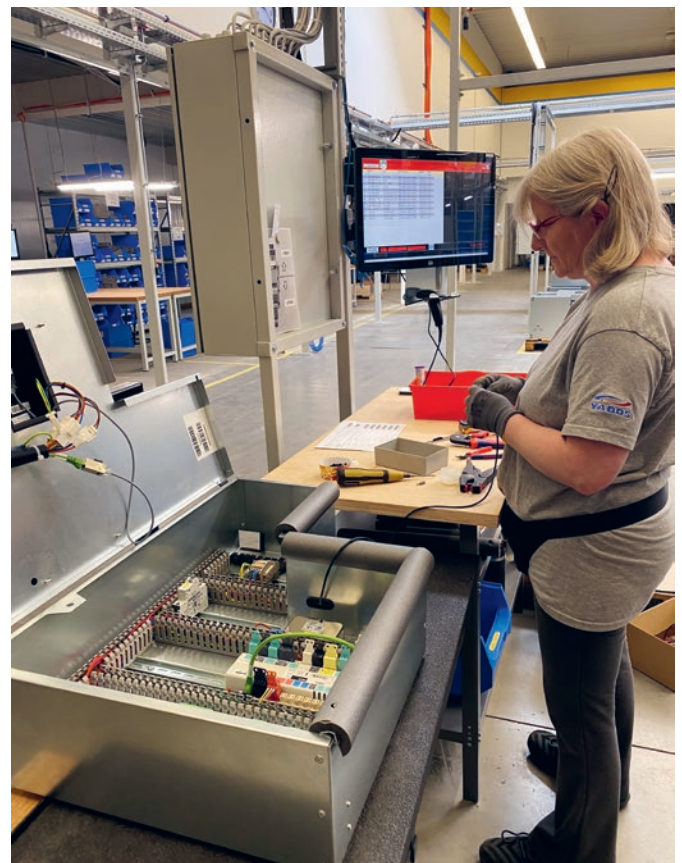
In the future, the TopTronic® supervisor control system will become more and more important. The higher-level control and communication system is capable of controlling the complete system technology of decentralised energy systems and ensures straightforward integration, networking and monitoring of all generator systems and sub-systems. TopTronic® supervisor is ready to go, making us ideally prepared for the multivalent heating networks of the future.

at short notice. And finally, YADOS is regularly involved in research projects or joint projects.

We are currently a member of the interdisciplinary joint project OptiNetz, part of the 7th Energy Research Programme of the German Federal Government. The background to this is the district heating project in the municipality of Bosbüll. Electrical energy from wind and solar plants is converted into thermal energy via a combined Power2Gas and Power2Heat concept and used in the municipality's district heating network. YADOS is responsible for the technical implementation of the Power2Heat solution as well as the control system for control and visualisation of the energy centre. One of the goals of OptiNetz is to develop AI-based, practical and transferable operating strategies for sustainable heating networks based on the knowledge gained in Bosbüll.

Finally, how do you see the future of district heating and the role of YADOS in achieving climate goals and promoting energy efficiency?

Frank Stiehler: In all probability, district heating systems will be operated primarily using renewable energies and industrial waste heat in future. The use of cogeneration



Assembling control panels for the indoor units of the Belaria® heat pump.

Appearance at Europa-Park



Since late March, the Europa-Park theme park has had a Liechtenstein-themed area. Hoval is listed on an information board as one of the country's successful companies. This is very appropriate, as Europa-Park currently operates four Thermania® units and will soon have a Belaria® twin AR from Hoval.



Conference focuses on energy transition



After three years away, our major sales conference was finally able to take place as an in-person event once again. This year, we met in Austria and – as well as providing a place to share experiences – the event focused on perspectives regarding energy supply.



eWAY project on the right track



Significant progress is being made in the eWAY project and the construction of the plant in Istnebé in Slovakia. Materials are already entering pre-production that will subsequently be installed. The new plant is set to begin regular operations by the end of 2024. It will represent a milestone in the history of Hoval.



New Managing Director

Nadia Wisniewski became the new Managing Director of Hoval France on 1 July 2023. We hope she enjoys every success in this new and exciting role.



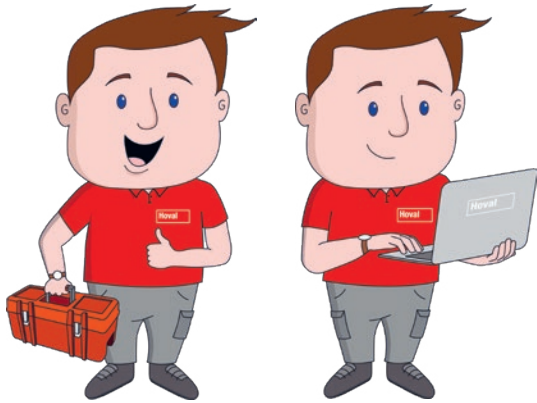
15 years of Hoval France



The sales company was founded in France 15 years ago – and has since achieved great success. The team at Hoval France celebrated the milestone in fitting style together with representatives from headquarters. Here's to many more successful years!



Ray, the new service technician



A new colleague has joined the Hoval service team: service technician Ray has been at work in the United Kingdom since the start of the year. In his friendly way, he shows how Hoval service technicians work. And since Ray is a comic character, he does this in unconventional style on our social media channels.



“Strong alone – unbeatable together”



This was the motto of the annual staff party for the Swiss team, which was held in May. In addition to a welcome pack and good food, it was the conversation that made the party an unforgettable experience.



Major honour for YADOS



YADOS GmbH has been recognised with the Oberlausitzer Unternehmerpreis (Upper Lusatia Entrepreneurship Prize). The districts of Bautzen and Görlitz award this prize to outstanding companies for their active social engagement and environmentally friendly and socially responsible activities.



Instructor on TV



Our Head of Training in Vaduz, Thomas Graf, appeared on Swiss TV channel TVO to discuss vocational training. He emphasised that showing genuine appreciation towards learners is fundamental to helping them choose a profession.



Responsibility for energy and environment