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GLOBAL



ENERGY DEMAND CHALLENGES & CARBON CAPTURE AND STORAGE

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Dear readers,

Energy consumption in Germany dropped to a historic low last year. However, what might sound good and sustainable at first, turns out to be less positive news, as the main reason for this development is the decline in economic output. Arbeitsgemeinschaft Energiebilanzen e. V. reported that the energy-intensive industry sectors in particular recorded a decline in production, which led to less energy being consumed.

In contrast, global energy demand increased, due to population and economic growth in emerging countries especially. One factor which recently increased the hunger for energy additionally and was not yet relevant in the demand predictions of previous years is artificial intelligence (AI). However, in turn, AI can also ensure more efficient processes

which help to save energy. CO₂ emissions also need to be reduced – carbon capture, utilization, and storage (CCUS) being the keywords here.

You can find out more about how the BUHLMANN Group as a supplier of the energy industry is positioning itself in this dynamic field of contradictions and requirements in this edition. I hope you enjoy reading it!

Sincerely,

Jan-Oliver Buhlmann

Sparks and Flames

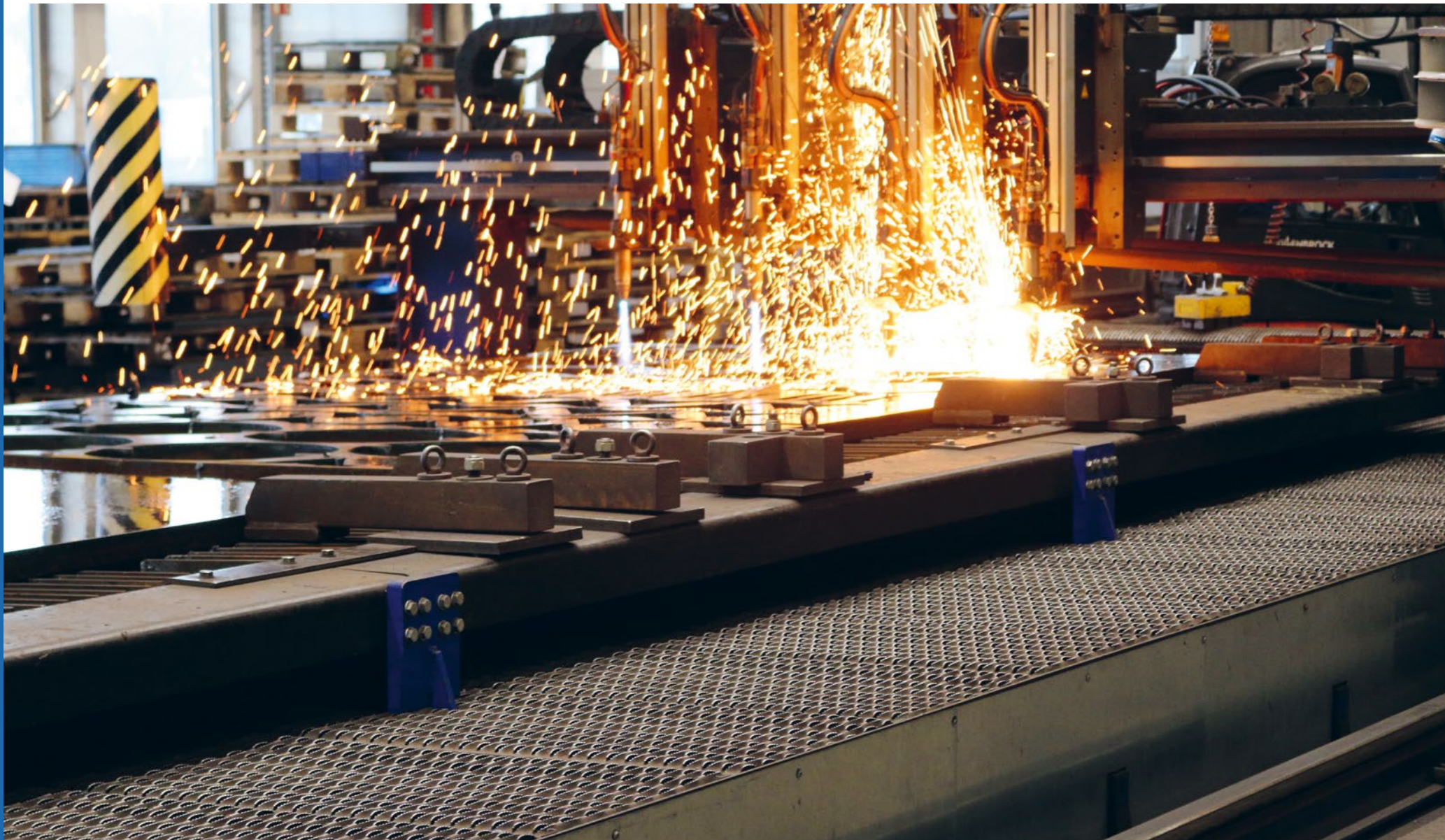
When the pipe support specialists of the LISEGA Group in northern Germany produce their supports, sparks fly and metal glows as it is deformed under loads weighing tons. Such heavy metal is not only a tradition at BUHLMANN but also the specialty of LISEGA SE in Zeven.

From the BUHLMANN site in Bremen, it only takes around half an hour by car to reach LISEGA SE's impressive production halls in Zeven. The company has been a member of the BUHLMANN Group since January of this year, breaking new ground and taking the step into the manufacturing industry. We were given the chance to check the production out for ourselves in the scope of a two-hour tour.

The company's expertise is already on display in the reception area, where the visitor passes were issued: a model shows a constant hanger holding pipes stably in place. LISEGA employee Marc Jacobs, our guide for today's tour, explained why the pipes also move completely independently of earth tremors: "Pipes and supports in an industrial plant need to withstand enormous forces and allow thermal expansion flexibly in equal measure. Normally, thermal movements of the pipes must be possible so as to avoid damage. In the case of shock absorbers, however, it is far more about preventing uncontrolled movements and the transmission of forces to the surrounding structures." For example, the test on the dynamic test rigs at LISEGA simulates an earthquake as a worst-case scenario, which is thankfully also an exception even in other parts of the world. This earthquake simulator is one of the largest in the world and serves as the test rig for the really large shock absorbers.

Ultimately, everything is physics – and that is also reflected in the LISEGA logo: the vector arrows symbolize the triangle of balancing forces within the constant hanger. They make it possible to hold pipelines with constant force even in cases of vertical movement. The engineering expertise which ensures that pipes can survive all thermal movements without damage has made LISEGA the global market leader in the field of industrial pipe support systems. Spring hangers, constant hangers, and shock absorbers of all sizes – from S to XXL, you could say – have been produced, assembled, tested, and shipped from Zeven since 1971.

Marc Jacobs has been at LISEGA for more than 15 years, where his role involves project management in the Estimating department and supervision of the product training sessions. On the tour, he explained in detail what is produced from the stored forged parts, flat and round steels, steel sheets, and compression springs. First, the individual components



When cutting sheets up to 120 mm thick on two CNC cutting machines with four oxyfuel torch heads each, the sparks fly.

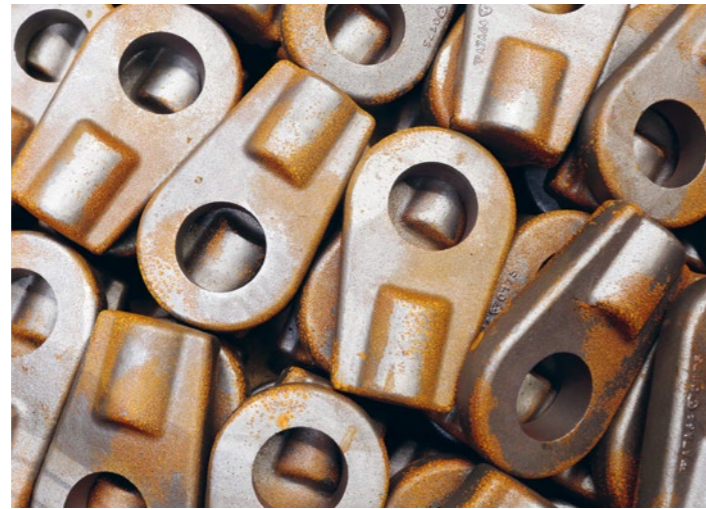
Bottom left: the products can already be seen in the entrance area of the LISEGA in the entrance area and „try them out“.

Bottom right: employees at a CNC cutting machine





Left: Component for pipe supports



Left: Firing blanks for the production of tube bearings type 49

Right: Forged blanks from connecting lugs

Right: Robot-welded housing for type 29 spring supports



Clockwise from above: Blasted tube bearings for further processing in the paint shop

The LISEGA soapbox

On test benches of various sizes constant and spring hangers are tested, calibrated and adjusted.

In the training workshop are also knowledge beyond the LISEGA standard products.



are manufactured. Humans and machines perform the milling, turning, and bending tasks side by side. There are also robots and large CNC systems in use which can work “unmanned”. The RFID system for the storage and localization of the components is also digital. “The rapid work cycles and precise workflow ensure that we are absolutely competitive in the spring hanger sectors, for example, even in comparison with Asia,” explained Marc Jacobs. When assembling the housings for constant and spring hangers, which are predominantly welded by machines, every step is perfect. “Product and process optimization for mass production is a true LISEGA specialty,” he added.

Screws rotate on a machine similar to a sushi conveyor belt, and forklifts whiz through the halls. Following our noses, we make our way to the area where the components receive a coat of paint and then reveal their true colors in a large drying chamber. In parallel, finished spring hangers are tested for precision on a variety of test rigs, adjustments are performed if required, and the hangers customized to suit individual requirements. The almost two-hour-long tour ends in the packaging and shipping department. “Lifting chains are also preassembled here if requested by the customer,” explained Marc Jacobs. Then he indicated the restricted area for air freight handling located adjacent to the

storage and packaging hall. There are about 150–200 employees working each shift in the halls in Zeven, depending on the order volume – which is very good according to Mr. Jacobs: “As the global market leader, we are always working on multiple international large projects in the conventional and nuclear sectors in parallel,” he said. “Efficient processes, mass production, and motivated staff ensure LISEGA is able to react even in busy periods.”

There are twelve production facilities in total, with the one in Zeven being the largest. In addition, there are sales offices, subsidiaries, and the field service, which takes care of plants and

construction sites, meaning LISEGA’s expertise is at home all over the world. Since 2014, the VICODA experts for vibration technology have also been involved not only in power stations but also in track and building construction. Calenberg Ingenieure GmbH and Schreiber Brücken-Dehntechnik GmbH are affiliated companies. Materials testing is the responsibility of Limalab, the independent, accredited laboratory which also accepts external customer testing orders. The LISEGA Group’s portfolio also includes software solutions such as the LICAD planning software and LISA documentation system.

Text: Wiesenhavern/Kopaniarz



Left: Sabine Kopaniarz and „tourguide“ Marc Jacobs

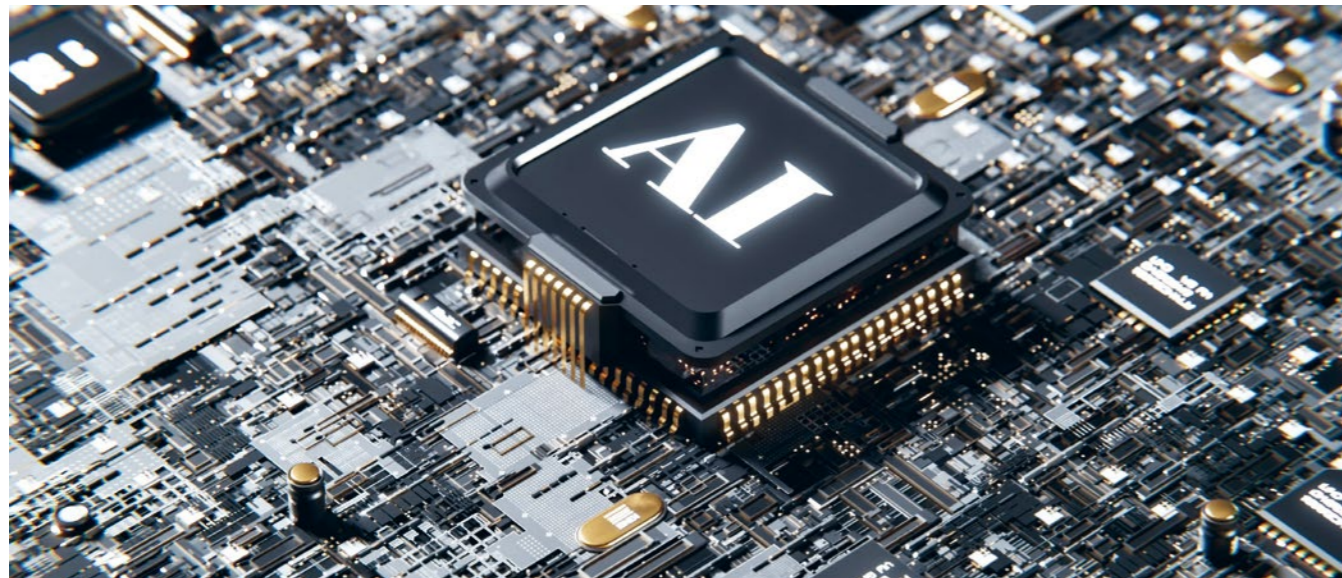
Right: LISEGA Headquarters in Zeven, Germany



Left: Components before coating

Right: LISEGA relies on ultra-modern CNC machining centers

“..like a hungry caterpillar..”



The world has a craving for energy: Population growth, industrial development, and rising living standards are leading to an increase in demand everywhere. Above all, it is the economic growth in emerging countries that is driving the demand for energy. A further factor which is now pushing the demand for energy even higher, and which was not yet relevant in the demand predictions of previous years, is artificial intelligence.

ChatGPT, Google Bard, etc., are changing the digital world. Artificial intelligence (AI) can make our life and work easier. But this requires the language models to be trained and fed with vast amounts of data. This turns them into gigantic energy guzzlers: The electricity consumption of data centers is climbing so rapidly that this year it even appears in the Electricity Market Report of the International Energy Agency (IEA), which has been published on a regular basis since 2020. The current edition of the study analyzes the driving forces behind the electricity



Jörg Klüver, COO

BUHLMANN's point of view

“It is imperative that these issues are tackled not only from an economic point of view but from a social and political viewpoint as well. As a supplier to the energy industry, we stand ready to support the whole host of possibilities for energy generation with our know-how. From the service and maintenance of conventional energy plants and nuclear projects through to renewable energies such as geothermal energy, we are available to provide people, material, and project planning.”

consumption in data centers. The preliminary conclusion: The global demand in these facilities will possibly double by 2026.

The International Energy Agency (IEA) thus expects the demand for electricity to rise by between 80 and 150 percent by 2050. The US economist and Pulitzer Prize winner Daniel Yergin thus compares AI to a hungry caterpillar which will put the growth of the world's energy systems to the test.

As the Handelsblatt newspaper reported in the middle of May, estimates assume that the global electric power demand of only those data centers in which AI is trained and operated could increase to the power output of almost 14 nuclear power plants in the next four years. Or to give another comparison: Forecasts assume that the continued growth in the number of users will mean the electricity consumption of the world's AI systems will reach over 80 terawatt hours per year. This corresponds to the electricity demand of countries such as the Netherlands, Sweden, or Argentina.

Experts consider this will present immense challenges not only for the electricity supply itself but also for the transition to renewable energies, because it will be difficult to satisfy the increased demand by expanding the use of renewable energies. One possible solution is to improve the energy efficiency of data centers for AI systems, and this is now the subject of global research. Three factors are named as being the main energy consumers in data centers: the data processing itself accounts for 40 percent, and the air conditioning a further 40 percent. The remaining 20 percent are down to the requisite IT equipment. Some experts hope that the AI-driven automation effects will produce elec-

tricity savings in the economy which balance out the increase in consumption brought about by AI.

One result of the growth in global energy consumption is that the CO₂ emissions are also increasingly becoming the focus of attention. The Carbon Management Strategy of the German Federal Government clearly states that it is not possible to avoid all CO₂ emissions. Not only data centers but also the hydrogen-powered steel and cement production can



Torsten Cordes, Director Domestic Sales Division

BUHLMANN's point of view

“To store gas safely, the drilling has to be safe, as does the feed-in to fill storage sites with gas. We are collaborating with our partner Tenaris on geothermal and gas storage systems.”

be given as examples here. Many countries see Carbon Capture and Storage (CCS) and Carbon Capture and Utilization (CCU) as possible solutions.

The idea behind CCS and CCU is that the CO₂ emitted is captured before it escapes into the atmosphere. Numerous countries, for example Norway, are already successfully using both technologies. Such projects are also to be found in the Netherlands, as Desi Mahabier from BUHLMANN Netherlands explained: “The Porthos project transports CO₂ from the industrial park in Rotterdam to depleted gas fields in the North Sea. And the Aramis project has been granted ‘Project of Common Interest (PCI)’ status by the European Commission on account of its major social significance. Both will play their part in reducing CO₂ in Europe.”

The German Federal Government plans to facilitate the underground storage of climate-damaging CO₂ in Germany as well. The cabinet adopted a corresponding draft of the Carbon Dioxide Storage Act in Berlin on May 29.

It provides for CO₂ to be stored primarily in the North Sea. The German Bundestag and the Bundesrat have yet to agree to it, however. The Federal Government already presented cornerstones of a corresponding Carbon Management Strategy in February.

Text: Gabriele Wiesenhavern



Achim Windmann, Head of Sales North

BUHLMANN's point of view

“CCS is a very exciting topic. Interestingly, the same tubes are used here as for geothermal plants, where we play our part in large-scale projects. We are also familiar with the issues relating to gas and hydrogen caverns and are already involved in such projects.”



As part of the plan to store climate-damaging carbon dioxide in the seabed under the North Sea in the future, the oil and gas company Wintershall Dea is pressing ahead with its plans for an export infrastructure for CO₂ in Wilhelmshaven. The company is working with the local tank terminal operator HES on plans for a CO₂ hub in a project called CO₂nectNow. Various studies had confirmed the technical feasibility, said a company spokesperson. The hub could go into operation in 2029.

To achieve its climate goals, Germany wants to be able to utilize underground, offshore CO₂ storage in the future. The technology behind this is called Carbon Capture and Storage, or CCS for short. CO₂ is captured and taken to an underground storage site where it is stored. The German Secretary of Commerce, Robert Habeck, recently presented the cornerstones of a corresponding strategy. It states that on-shore storage will continue to be excluded for the time being.

HES itself states it operates Germany's largest independent tank terminal in Wilhelmshaven on a site covering more than 200 hectares (roughly 500 acres). It has a deep-water wharf and railroad and industrial infrastructures.

“The plan is for the CO₂ to arrive at CO₂nectNow by pipeline and rail from all over Germany and be stored temporarily until being transported into the North Sea in tanks with a capacity of up to 50,000 tonnes,” said the Wintershall spokesperson. It would thus be possible to transship up to ten million tonnes of CO₂ per year in total. A similar project was underway in Denmark, where Wintershall was already involved with the CO₂ storage.

There were also plans for a pipeline through the North Sea to transport CO₂ to storage sites in Norway. This project was still at an early planning stage, said Wintershall. In the meantime, CO₂ could also be transported by ship.

Quelle: dpa

More than just hot air

Use an outsize hairdryer to reduce CO₂ emissions – this was the goal of the Bremen start-up Heatrix when it kicked off around three years ago. Its founders want to set new standards in the development of sustainable technologies. Their vision: To make the energy-intensive industries more sustainable and pave the way for a greener and cleaner future.



Dr. Wei Wu

The European Union, the USA, and Canada want to become climate neutral by 2050. China wants to reach this goal by 2060, and India by 2070. This means that companies are already having to rethink and search for alternative CO₂ solutions. Industry above all is facing a challenge: Process industries such as steel, cement, and basic chemicals are responsible for a large proportion of the greenhouse gases produced.

GLOBAL // From studying aerospace engineering to developing a sustainable technology – how did this step come about?

Dr. Wei Wu // I found the idea of building rockets fascinating. But after finishing my degree I realized that it is a very small sector of industry. Ultimately, it was mainly the impact that I missed: At

the time, one of the rocket launches failed, something which happens time and again, of course. And I thought: Just imagine, you spend ten years helping to build this rocket and then it doesn't reach its destination. So, I asked myself where the added value was and looked around for alternatives. As I was finishing my degree in 2009, the issue of climate change was also gaining more prominence in the media. That made me think I wanted to do something in this field.

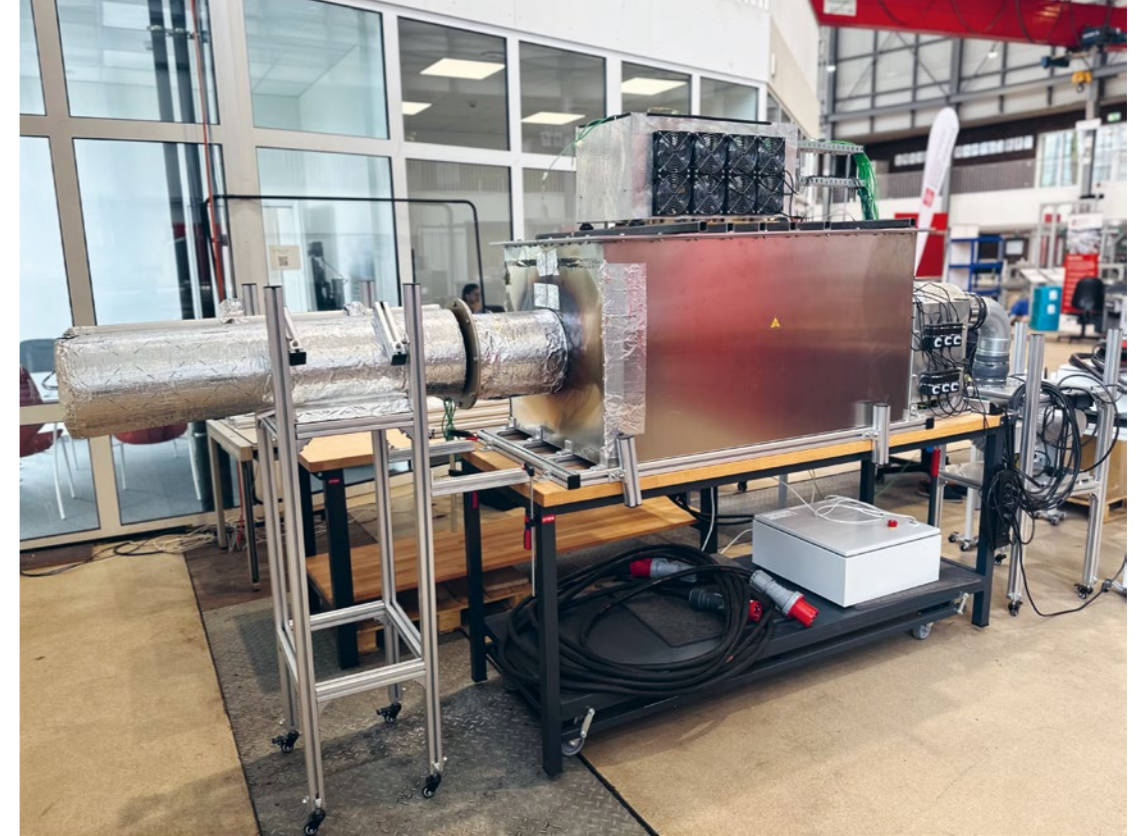
So, you founded Heatrix in 2021. How did this idea come about?

The idea evolved out of my earlier start-up, which I founded in 2019 together with a former colleague. Our goal was likewise to supply industry with process heat but using a different technology. We wanted to use direct insolation to produce heat. But the market for this is relatively limited because the technology can only be used in certain regions anyway. In Germany and the Scandinavian countries, it is not economic, for example. Thus, all in all, we realized that the process industry is a large market but this technology is only of use there under certain circumstances.

And then you had the idea to decarbonize the process heat produced by industry with a type of outsize hairdryer?

Exactly. Because conventional air heaters – which transform electricity into heat – already exist of course. It's not a new principle. So why not use the idea behind the hairdryer and use electricity to produce heat? Because what basic industry such as the steel, cement, or brick industry ultimately needs to produce its materials is heat – usually high-temperature process heat. The principle has not yet been used that much in industry because it is far cheaper to burn gas or coal than to obtain heat from electricity – until now at least. The transition from conventional "gray" line power to "green" electricity from renewable energies is bringing about a change.

Conventional "gray electricity" is produced by burning coal or gas to generate heat initially and then electricity in the next step. Using this electricity to generate heat for industry again would be quite nonsensical from an efficiency point of view. It's obvious here that the process heat industry burns gas or coal directly. But renewable energies are bringing about a change: Electricity can now be generated directly via a photovoltaic system, without going the long way round via the combustion of fossil fuels. And this green electricity can now be used directly to supply regenerative heat.



✓ The prototype for generating CO₂-neutral process heat at BIBA – Bremer Institut für Produktion und Logistik GmbH

Does this also make it cheaper for businesses?

The economic efficiency depends on how much this electricity costs compared to natural gas or coal. When a company uses line power, electricity is more expensive than gas at the moment. But when a company has its own photovoltaic system, the whole thing is already much more economic. Because the price of this in-house electricity can even be less than the price of gas, or at best the system has already paid itself off. A further advantage is that a company is less dependent on external factors since it does not rely on fluctuating energy prices. Another aspect is the fact that the price of CO₂ in Europe will increase considerably in the next few years. Companies are having to pay more and more to offset their CO₂ emissions. So, when they continue to use natural gas in their production processes, it will get more expensive in the long run.

How exactly does your prototype for generating CO₂-neutral process heat work?

Our heater works like an outsize hairdryer: Electric current is fed through a large number of resistance heating elements, which become very hot because of the electrical resistance of their material. Think of the filament in a hairdryer. Cold air is then drawn in on one side and channeled past the hot heating elements. The air thus heats up and this hot air comes out on the other side.

Why did you decide to specialize in the energy-intensive industries?

A great deal is already happening in many sectors such as transport, in relation to electricity generation or the heating of buildings. In energy-intensive industries, there are hardly any

alternative solutions as yet. In addition, we want to become actively involved where we can make as big an impact as possible in relation to CO₂ reduction. After all, something has to happen quickly if we really want to achieve the aspired goal of CO₂ neutrality by 2050.

Could your technology also be used in other sectors which do not use high-temperature process heat?

That would be possible because the solution we offer is modular. The first stage is a low-temperature solution which works up to about 900°C (approx. 1,600°F). The second stage is the high-temperature solution which goes up to 1,500°C (approx. 2,700°F) and which we are in the process of developing on the basis of our prototype. Electricity-based hot-air solutions up to 900°C are already on the market. But not yet on a large scale, because electricity prices have meant demand has not yet been high enough.

How does your idea differ from existing solutions?

We use mainly standard components which already exist and combine them into a new application – into a system which didn't exist before in this form. So, we're also hoping this will speed things up for us to a certain extent because we don't have to invent everything from scratch but can draw on existing elements. This means we don't have to wait until the second stage has been successfully developed to 1,500°C to market our product, we can instead start with the low-temperature solution. This is low risk, because the system is already available off the peg as it were.

What "more" we then do is to develop it further: How big does



✓ Part of the Heatrix-Team: Dr. Wei Wu, CEO, Dr. Stefan Gasow, CTO and Robert da Silva, Development engineer (from left to right)

the system have to be? How do we design it? How can we use modules to facilitate series production? And then there's the issue of storage. This is important for companies which want to use electricity from their own photovoltaic systems but whose process has to run continuously or at very specific times and not only when the sun is shining. We can then switch the storage system between our hairdryer and the process. The storage system also makes it possible to obtain favorably priced green electricity directly from the energy exchange and store it for hours with expensive electricity to reduce costs even more. Pilot projects by competitors who have been in the market longer but focus on storage technology are already underway. We supply the complete package "Heater and Storage System". At first, it will only be in the low-temperature range up to 900°C, to demonstrate that the combination with the storage system and green electricity works. We already have pilot partners who would like to test the whole thing with us. And we are further developing our high-temperature system in parallel and will then enter the race with further pilot projects.

Which milestone is the next important step?

Our pilot projects are intended to show that our system can replace the natural gas burner without there being a drop in performance and turnover. When we have successfully demonstrated the pilot system for the low-temperature system, we will move on to step 2. This will be the commercialization and the sale of our first products. At the same time, we will then use what we have learned from the low-temperature system to develop the second stage up to 1,500°C. In parallel, we will construct pilot systems for the high-temperature system up to 1,500°C, and then launch and sell them. This will take us a little while longer, however, because the development is much more complex.

What are the advantages of your prototype over transitioning to hydrogen?

This again comes down to the efficiency: We use electricity and convert it directly into heat. Which means we only have one conversion step and can therefore achieve up to 95 percent efficiency. With "green" hydrogen, electricity has to be used via an electrolyzer to first produce the hydrogen. Good electrolyzers have an efficiency of around 85 percent. Then the hydrogen usually has to be transported and stored. This means further conversion steps are necessary before the hydrogen can finally be used for the combustion. The final efficiency is therefore around 50 percent.

Ultimately, it is the price of electricity which determines the economic efficiency. This means a system with higher efficiency is more economic for the company, because such a system allows more of the expensive electricity to be used than does a system with lower efficiency. Therefore: With our system, the customer can use around 95 percent of the electricity, compared to around 50 percent with hydrogen-based systems. But it also depends on the process. With some products, the heat transfer can only be brought about via radiation. This means there still has to be a flame, which makes it more suitable for hydrogen or biomass burners. But for many other processes it is much more efficient to use our system.

Where do you see Heatrix in the next five years?

We want to have sold our first systems by then. In a nutshell: We want a market presence and for our systems to be up and running – both high-temperature and low-temperature systems.

What are your goals in respect of the decarbonization of industry?

About Heatrix GmbH

Heatrix is a Bremen-based start-up which was founded in 2021. Dr. Wei Wu is founder and managing director, and thus responsible for the strategic direction of the start-up, operations, and fundraising. Dr. Stefan Gasow is co-founder and CTO and thus responsible for technology and product development. The Heatrix team consists of the two founders, three further per-

manent members of staff, and five students. They are united in their vision of using their technology to make headway with the decarbonization of industry.

The start-up has set itself the goal of replacing fossil fuels in energy-intensive industries such as cement, steel, and chemicals. The modular Heatrix System combines an elec-

tric air heater with a thermal energy storage system to convert renewable electricity into carbon-free high-temperature process heat. Since the Heatrix System uses the flow of hot air to transfer the heat, it can be integrated into existing installations via insulated pipes. This approach means low initial costs, short downtimes, and lower levels of risk for plant owners.



Our goal is for companies in energy-intensive sectors to achieve their own sustainability goals with our technology while remaining economically efficient and thus increase their competitiveness.

Imagine you are approached by a steel company wanting to implement your low-temperature technology. How long would it take to fit out this company with your technology?

It's difficult to give a general answer. It depends on the process to a great extent: How complex is the integration? How much space is available? Which infrastructure is already on site? Is the electric power connection adequate? Does the customer wish to use their own green electricity? In the best-case scenario, when the gas burner is installed external to the actual process, for example, it's really simple to exchange it. And if a photovoltaic system is already available as well, it should be possible to integrate it in one to two months on a small scale of less than one megawatt.

Does it make a difference whether the company is from the steel, cement, or ceramic sector?

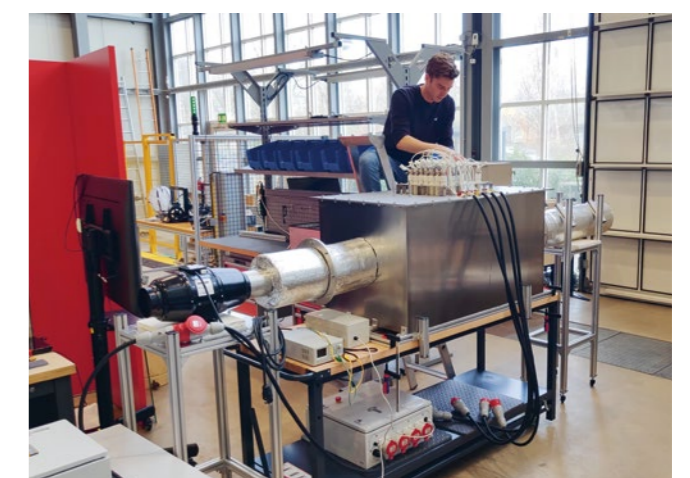
It doesn't depend on the sector. The determining factor is the process. The steel and the cement sectors use drying or pre-heating processes for instance, and our technology is suitable for them.

Does the size of a company make a difference to the time it takes?

No. The power requirement of the process is the relevant factor for the integration, not the size of the company. Our prototype currently supplies only 50 kW. Our smallest unit which we would later sell would be 250 kW. But our system has a modular

concept. For larger installations, we do not upscale the system, we increase the number of modules. This distinguishes us from conventional plant engineering companies which produce individual installations which are customized to the customer's requirements. This is very expensive, complex, and individual. We on the other hand want to use the modular design to achieve series production, so that we ultimately always produce the same product and can thus greatly reduce costs. And depending on the process power we are required to supply we have one, ten, or fifty units. It's a bit like working with batteries: Some equipment requires two batteries; others need twice as many.

Questions by Katrin Steinkamp



CTO Dr. Stefan Gasow setting up the prototype

Six webinars in six weeks



Jannika Ratzke, Katrin Steinkamp and Alice Hossain (not in the picture) will moderate and organize the event.

In May and June, there was a fresh breeze blowing through the BUHLMANN Port, with industry experts offering interesting impulses in their online presentations. The aim of the series was to provide insights into current industry and business topics geared towards the needs of customers.

Is green steel the future? What are the current trends in the steel industry? How can small and medium-sized enterprises (SMEs) gain an advantage through digitalization? The speakers dealt with these and other questions in detail in their online presentations. Each webinar was also followed by a Q&A session. Jannika Ratzke, currently in her third year as an apprentice at BUHLMANN, hosted the webinars and drew a positive conclusion: "I was delighted to represent BUHLMANN as the host and be involved in the exchange between the speakers and customers. Alongside the new experiences I was able to gain, the contact with the speakers in advance was also very rewarding."

From a start-up founder to the chairman of a steel corporation to an SME consultant – there wasn't just a wide range of topics, the speakers also came from different sectors and thus provided completely different insights. "We were delighted to be able to

secure top minds from the industry once again for this round of webinars," said Ronald Speidel, Director Corporate Business Division.



Ronald Speidel, Director CBD

Next round in the fall

The next topics are already planned for the fourth quarter. "We plan to utilize the results of the participants' feedback surveys to optimize the structure and content of the webinars," said Katrin Steinkamp, Manager Central Offices & Communications, who organized the webinars. An overview of the current webinars should be available in the Webinar section of the BUHLMANN Port from the fall. A quick visit or a tour when you have time is always worth it – feel free to drop by at <https://www.buhlmann-port.com/public/index.htm>.

Should you have any questions concerning registration, please send us an e-mail at Corporate_Communications@buhlmann-group.com. Please also feel free to send us feedback or topic suggestions at any time.

Text: Katrin Steinkamp

BUHLMANN and Lockwood Partners

The integration of Lockwood Partners into the BUHLMANN Group is progressing. Ricky Burns, CEO at Lockwood Partners, about the current status and next steps.

GLOBAL // When you joined BUHLMANN Group last year, a transition began. What was mostly an inter-company process before is now going to be communicated directly to customers and suppliers. How will you let them know?

Ricky Burns // In order to integrate and merge the BUHLMANN Brand into Lockwood Partners externally there will be a gradual customer and partner communication letter. The letters are being worked on now and will start to go out to all our customers, suppliers, and vendors over the next few months.

There won't be much of a change for your business partners then?

Since the formal company name and tax number etc. will not change due to the transition, for our customers it's merely an external detail. In concrete terms, this means that Lockwood Partners LLC will remain unchanged as a registered company but will in future operate under the BUHLMANN brand. The BUHLMANN logo will appear at the top of the letterhead, but Lockwood Partners LLC will continue to appear in the footer with the same details as before. Our bank, how customers pay us, all of that will stay the same. Just the Lockwood brand changing to BUHLMANN and it is all very positive without any negative effect on business.

How do you think customers will react?

The communication letters will also discuss the benefit of switching over to the BUHLMANN brand and the resulting benefits. Our core customers should respond very favorably. Our core customers have been with us for a very long time, through all the good times, and all the bad times over the past 49 years. Next year is our 50th year anniversary, which coincides with BUHLMANN's 80th year anniversary. 2025 should be a great year for all. We have proven to be a true partner with our customers through our past 49 years of honesty and transparency. Moving to the BUHLMANN brand will be no different, we will be honest, transparent. And our customers will react positively towards the brand move, as it is a very positive deal for us, and in turn our customers.

Why is it so important that customers are approached directly instead of learning about this via social media or by hearsay?

Being honest and transparent has always been our motto with all our customers, vendors, and suppliers. Having them find out



Lockwood Partners CEO Ricky Burns

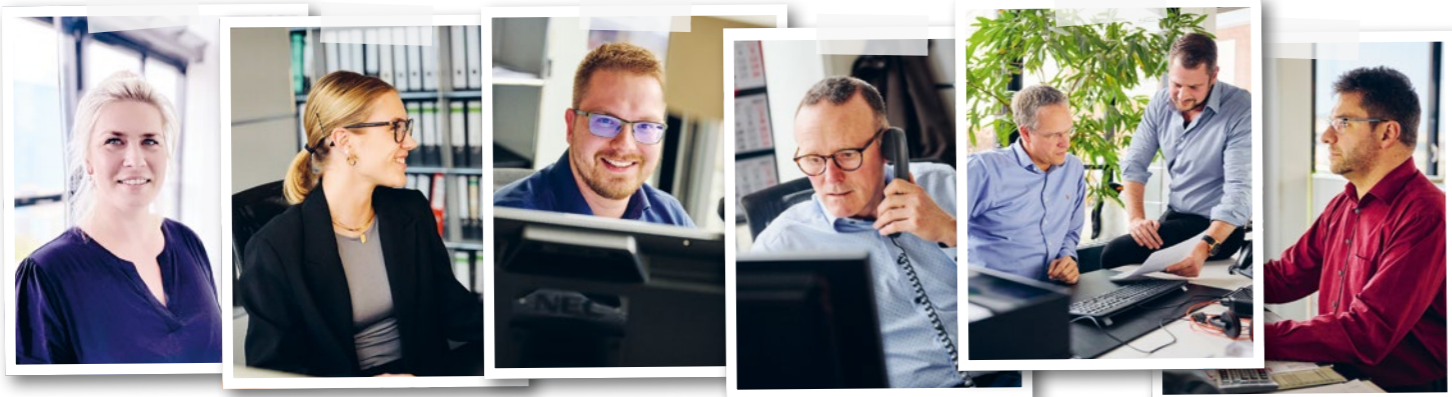
about our new ownership group and brand change through social media or hearsay would be a big injustice on our part. In the end, the Lockwood to BUHLMANN brand change and having The BUHLMANN Group as our new owner is a very positive situation for us at Lockwood Partners. So, why wouldn't we want everyone to know and hear from us directly rather than through social media or hearsay?

Can you give us a short insight into how your business processes and results have changed since you became part of the BUHLMANN Group?

Our customer service at Lockwood has always been second to none in our industry for the past 49 years, and that will never change. With our previous ownership group, our hands were tied at Lockwood for the past several years when it came to adding inventory, manpower, and all-around growth. Under The BUHLMANN Group, our hands are now untied and they want us to grow, which we will. We are adding puzzle pieces to an already very talented Lockwood team and under The BUHLMANN Group nothing will stand in our way when it comes to future growth and increasing sales. We have the proper backing now to get our company to where it needs to be and get BUHLMANN Group name and brand noticed in North America. The BUHLMANN Group is also slowly moving us into a ISO 9001 certified company. What this means is our process and procedures will only improve as we will be doing the same things procedurally as all BUHLMANN companies are doing across the globe. This will only translate into better service for our customers.

Questions by Gabriele Wiesenhavern

Sales North restructured



Stephanie Lüers, Jannika Ratzke, Julian Iden, Stefan Klaiber, Alf Schmeichel, Hendrik Wülbers, Marcel Kestner

Sales North, based in Bremen, is the oldest sales department in the company. With ten members of staff at present, it primarily takes care of industrial customers all over Northern Germany. "Our sales area stretches from the Dutch to the Polish border and from the Danish border down to southern Lower Saxony.

The majority of goods deliveries are handled by the regional warehouse in Bremen, which is consistently geared to the requirements of these customers," explained Head of Sales North, Adrian Windmann. Mr. Windmann took over the department on July 1, 2023, succeeding Torsten Cordes, the newly appointed Director Domestic Sales.

Under Torsten Cordes' leadership, the sales team was divided into two groups in 2018 – as of 2024, there are now three: the Wave team is responsible for the shipbuilding industry and its suppliers from the piping sector as well as mechanical engineering and dealers. The Wind team, in contrast, serves the sectors dealing with the energy forces. These include, for example, refineries, the chemical industry, boilers and heat exchangers, power stations and utility companies, oil and gas, and manufacturers of fittings and elbows as well as the remaining pipe manufacturers active in the energy sector. The new addition is the Green team, which focuses on solutions in the fields of geothermal, hydrogen, and fittings projects.

Green team

The special requirements of the energy transition and the focus on renewable energies led to the realization that the existing team structure in the Sales North department needed to be adapted and supplemented by a new team. That is why there

is now a Green team in addition to the Wind and Wave teams. The color is a reference to renewable energies in the field of geothermics and potentially the hydrogen economy in the future. In addition, according to Adrian Windmann, it is about creating space for dynamic approaches. "The new Green team's work revolves around new products and new ideas relating to renewable energies. The customer focus of the other two teams remains unchanged." He added that this creates capacity for new projects and prepares them for follow-up orders: "There are further extensive projects like Laufzorn II in the surrounding area, in Pullach and Aschheim, for example. North Rhine-Westphalia is drilling various exploratory wells, so we are expecting various projects in 2025 and 2026." Activities are also getting underway in the North, where the approval was recently received for an exploration permit for geothermal drilling in the Bremen and Weyhe area.

Heat transition through geothermics: a new initiative

Since May 2024, BUHLMANN has been part of the association of geothermal companies and municipal and private energy suppliers that have been supplying district heat from deep geothermal energy to customers for up to 20 years. If the temperature of the geothermal energy permits, green electricity is also produced. The aim is to utilize the potential of geothermal energy for the heat transition throughout Germany and thus to offer a quick solution for the supply of urban regions with carbon-neutral heat.

The initiative is supported by companies from the construction and supplier industry, associations, and the Fraunhofer Research Institution for Energy Infrastructures and Geothermal Systems – IEG.



"Wärmewende durch Geothermie" is always ready to welcome new members: further information can be found at waermewende-durch-geothermie.de

Wind team: Marcel Kestner (team lead)), Stefan Klaiber, Christian Maaß, Julian Iden, and apprentice Lara Meyer

Wave team: Hendrik Wülbers (team lead)), Bennet Meier, Stephanie Lüers, and apprentice Dorian Dohmen

Green team: Adrian Windmann (team lead)), Thorsten Pahlow, Alf Schmeichel, and apprentice Jannika Ratzke

A CLOSER LOOK AT ...

... NRG Special Products

Founded under the name Dylan Production in Oud-Beijerland in 1991, NRG is now based in Dordrecht and merged with BUHLMANN Netherlands more than two years ago. Rene de Buck, Manager of NRG, told us more about the company itself and its name.

GLOBAL // Who or what is NRG?

Rene de Buck // NRG Special Products is a proud member of the BUHLMANN Group and represents the En-er-gy Special Products business division. We are the in-house machining facility of BUHLMANN Netherlands, offering customer-specific modifications and the production of stock items and custom-made products to customer specifications.

How is NRG organized?

Our committed team comprises 11 qualified members of staff, who operate 12 turning lathes, including both conventional and CNC turning and milling machines. Almost all of our CNC machines are controlled by a highly sophisticated CAD/CAM system, with our Planning/Preparation department creating 3D models based on strength calculations.

What can NRG do?

We have an extensive range of machines at our disposal, allowing us to turn diameters of between around 20 and 1,250 mm. The milling dimensions here range up to X-3,000, Y-1,260, and Z-1,500.

Who are your clients and target markets?

The majority are within the BUHLMANN Group itself, which serves our associate companies. Others come from the plant engineering and the 24/7 service and maintenance sectors.

What sets you apart or makes you strong?

We excel at working with almost all types of materials from low-carbon to stainless steel and alloys. A solid stock of raw

materials and semi-finished products allows us to respond to customer requests rapidly. In addition, we can also work with materials provided directly by the customer.

Why choose NRG?

We are specialized in turn-arounds so as to minimize downtimes and delays for our customers. For example, we can manufacture products with extremely precise tolerances and create drawings and calculations for non-standardized products via a CAD system. Furthermore, we can also perform additional product testing. In short, we have extensive knowledge and a wealth of experience! In addition, we are proud of our fast delivery times and 24/7 availability for our contract customers.



Rene de Buck

Questions by Monique Spijkerman

Feel free to contact us at the following email addresses:

- General Information: NRGSpecialProducts@BUHLMANN-group.com
- Requests for offers: NRG-quotation-request@BUHLMANN-group.com

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