

KAESER report

A Magazine for the Production Industry

1/24

Sustainability in the Water Industry



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Jason Morgan
Chief Executive
HPC Compressed Air Systems

Artificial intelligence and human responsibility

When the company OpenAI released access to an artificial intelligence (AI) chatbot for general free use in November 2022, few people could have imagined the huge implications that AI would have both on a wider and personal level. Just two months later, ChatGPT had more than 100 million users!

ChatGPT is neither a computer program, nor an algorithm, but a neural network with intermediate layers and billions of connections for processing human language that functions in a similar way to the human brain.

Since neural networks not only have the ability to learn faster and more comprehensively, but can also help guide the user's cognitive processes, AI quickly became a key component in many fields of science, such as mathematics, chemistry, pharmaceuticals, medicine, and even the humanities. AI serves as an exceptionally powerful assistance system, capable of supporting and aiding humans in their tasks. It enables companies to manage numerous tasks and workflows faster, more economically, and with greater efficiency. With AI,

human decisions can be made more comprehensively and swiftly than without it, leading to enhanced company efficiency and competitiveness.

Meaningful applications for AI exist in all companies, regardless of their industry or size. Consequently, it is not individuals who will be replaced by AI, but rather companies that do not adopt its use will be supplanted by those that successfully leverage the immense benefits that this technology has to offer.

What cannot be replaced is the human dimension, whereby human brains are trained and developed over decades through numerous valuable learning processes, and through the interactions with as many other people as possible that involve the exchange of thoughts and ideas from the natural neural networks of their brains. This leads to a natural, unique human intelligence and to individuals who are able to make correct decisions and act responsibly with intelligence, integrity, intuition and creativity. AI is not suitable for this.

The future: Our most important resource

IFAT has come a long way from its origins in 1966 as an international trade fair for the wastewater industry. Today, this global network for environmental technology is the largest platform and international meeting point for the water, wastewater, waste disposal and raw materials management industries, showcasing innovative products that set new standards for the future.

As the world's foremost trade fair for environmental management, IFAT Munich will be presenting a multitude of efficient, sustainable supply and disposal solutions. What is intelligent water management? How do we optimise the use of secondary materials? How can we make recycling and the circular economy more profitable? The exhibition pulses with ideas, inspiration and innovation for all of those involved with water and wastewater, exhaust gas and air purification, waste management and energy recovery from secondary materials. Drinking water supply and wastewater disposal account for around 40 percent of a city's or municipality's energy consumption, therefore the incentive to improve energy efficiency in sewage treatment plants and waterworks is considerable. As always, an important starting point in this regard is large consumers such as pumps and motors. Moreover, energy can be recovered from a sewage treatment plant: the biogas emitted by the sludge can be converted into heat or electricity. Today, almost all wastewater companies across Germany use renewable energy in order to reduce their overall energy consumption and thereby protect the environment.

only cost-efficient rotary screw blowers for low-pressure applications, now equipped with synchronous reluctance motors, but also complete rotary screw and reciprocating compressor stations, as well as portable compressors. Whatever the requirement may be, when it comes to the low-pressure range KAESER has the perfect solution.



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We look forward to seeing you there

There's plenty to see! Find out more about the products and services available from KAESER KOMPRESSOREN by speaking to one of our compressed air experts from Coburg - they're looking forward to meeting you in Munich, introducing you to the latest technology and exchanging ideas about future trends.



New milestones in the low-pressure range: FBS 720 L and GBS 1050 rotary screw blowers

Two new rotary screw blower models – the FBS 720 L and GBS 1050 L SFC – provide a maximum usable flow rate of 72 m³/min and 105 m³/min respectively. Both stand out for their maintenance-friendly design, which in the case of the FBS permits side-by-side installation.

Extremely effective pulsation damping ensures low-noise operation, whilst slip-free synchronous reluctance motors combine the benefits of high-efficiency permanent magnet motors with those of robust asynchronous motors. Variable speed control enables flow rate to be adjusted as needed. The internal SIGMA CONTROL 2 blower controller and SIGMA AIR MANAGER 4.0 master controller not only ensure optimum energy effi-

ciency when generating blower air, but can also be integrated into production, building management and energy management systems, as well as Industrie 4.0 applications, thanks to numerous interfaces and information integration options. This makes them ideally suited to applications in the low-pressure range, such as those found at wastewater treatment plants.

Rotary screw compressor station AIRCENTER SM 13

In addition to blower air, compressed air also has a role to play in the water industry – it is essential e.g. for controlling pneumatic cylinders and valves in wastewater treatment plants. The perfect example of a dependable and clean control air supply is the Aircenter SM 13; this compact complete system comprises not only an efficient rota-

ry screw compressor, but also an air receiver, refrigeration dryer and optional filters.

i.Comp 8 and 9 Tower T reciprocating compressor station

An oil-free reciprocating compressor with a speed-controlled motor that always delivers the exact amount of compressed air actually required by the application. With i.Comp Tower T versions (flow rate 409 to 570 l/min, pressure up to 11 bar), the compressor block, air receiver, refrigeration dryer and SIGMA CONTROL 2 controller are all packaged together inside a single housing as a complete, connection-ready system. Thanks to its compact dimensions, the i.Comp 8 / 9 TOWER (T) features a footprint of under 1 m². To commission these space-saving complete compressed air stations, only an electrical supply and con-

nection to the compressed air network is required. What is more, the new drive concept provides a multitude of benefits: thanks to frequency control, it always delivers the exact amount of power needed to cover the respective compressed air requirement at any time. Optimised inflow and cooling for the cylinders ensures maximum efficiency is maintained. These powerful all-rounders are capable of 100% duty cycles, making them particularly well-suited to trades, industrial, workshop and laboratory applications.

Portable compressor: MOBILAIR M13E

High performance does not necessarily have to mean a large size or a heavy operating weight. Powerful, lightweight, compact and flexible – wherever an electrical

connection is available, the new M13E portable compressor comes into its own for applications such as powering drills, saws, screwdrivers and grinding machines, or supplying impact moles and sewer robots with delivery volumes from 0.75 m³/min (15 bar) to 1.25 m³/min (7 bar). Its whisper-quiet electric drive makes it a welcome operator in Green or Low Noise Zones.



Compressed air for the water industry: The AIRCENTER SM13 is ideally suited to controlling pneumatic cylinders and valves at wastewater treatment plants.

The compact but powerful MOBILAIR M13E with electrical connection is ideally suited to powering construction machines, impact moles and sewer robots.



With the i.Comp 8 Tower T, compressor block, air receiver, refrigeration dryer and SIGMA CONTROL 2 controller are packaged together in a single housing.



The new FBS 720 L rotary screw blower impresses with its low-maintenance design, which also makes side-by-side installation possible.

The micronutrient manufacturer

Family-run food supplement manufacturer naturafit are artists in the field of capsule production, blending experience in the traditional apothecary trade with state-of-the-art research and technology. Superior, quality-tested raw materials, highest-possible production standards and genuine love for the product are what distinguish naturafit's wares from industrial, mass-produced alternatives.

25 years ago, pharmacist and company founder Georg Galster was already turning his thoughts toward food supplements. At that time, pure dietary supplements from a pharmacist were unavailable – the only option was industrial products with many additives, which often made them unpalatable. His idea? To offer customers a genuine and palatable apothecary product free from unnecessary additives. Shortly afterwards, he began producing the first capsules in his pharmacy, employing the traditional method that was once ubiquitous – the pure raw ingredients were capsulated by means of a small, manually operated machine, without the use of industrial additives. The idea struck a chord with his customers, requests ballooned and before long the available space in the pharmacy was no longer sufficient. So in 2011, the manufacturer moved to their current premises at Röttenbach in the German region of Middle Franconia. Customer demand continued to grow, and in 2019 this facility was extended and upgraded. Today naturafit employs more than 50 people; production, however, remains manual, as it has since the beginning. High scientific standards and the traditions associated with a family-owned company are by no means mutually exclusive: naturafit combines up-to-date technical knowledge with decades-long dependability and experience in a constantly expanding business. Asked what the benefit of manual production is in the case of food supplements, Ulrich Galster (Managing Director and son of the original founder) responds: "This is the only way we can dispense with unwanted additives. In industrial manufacturing, you have to add many other ingredi-

ents (e.g. anti-caking agents such as magnesium stearate, silicon dioxide and talc) to the powdered mixture for it to be processed quickly and cost-efficiently. We don't want these additives, because we firmly believe that people should put only pure micronutrients into their bodies." When selecting raw ingredients, the focus is on quality, purity and bioavailability, whilst the use of vegetable cellulose capsules keeps the products free from coating and colouring agents. naturafit's production process includes a particularly meticulous quality inspection.

Capsulation takes place in the traditional way – by hand. Here, the powder is brushed into the capsule halves.



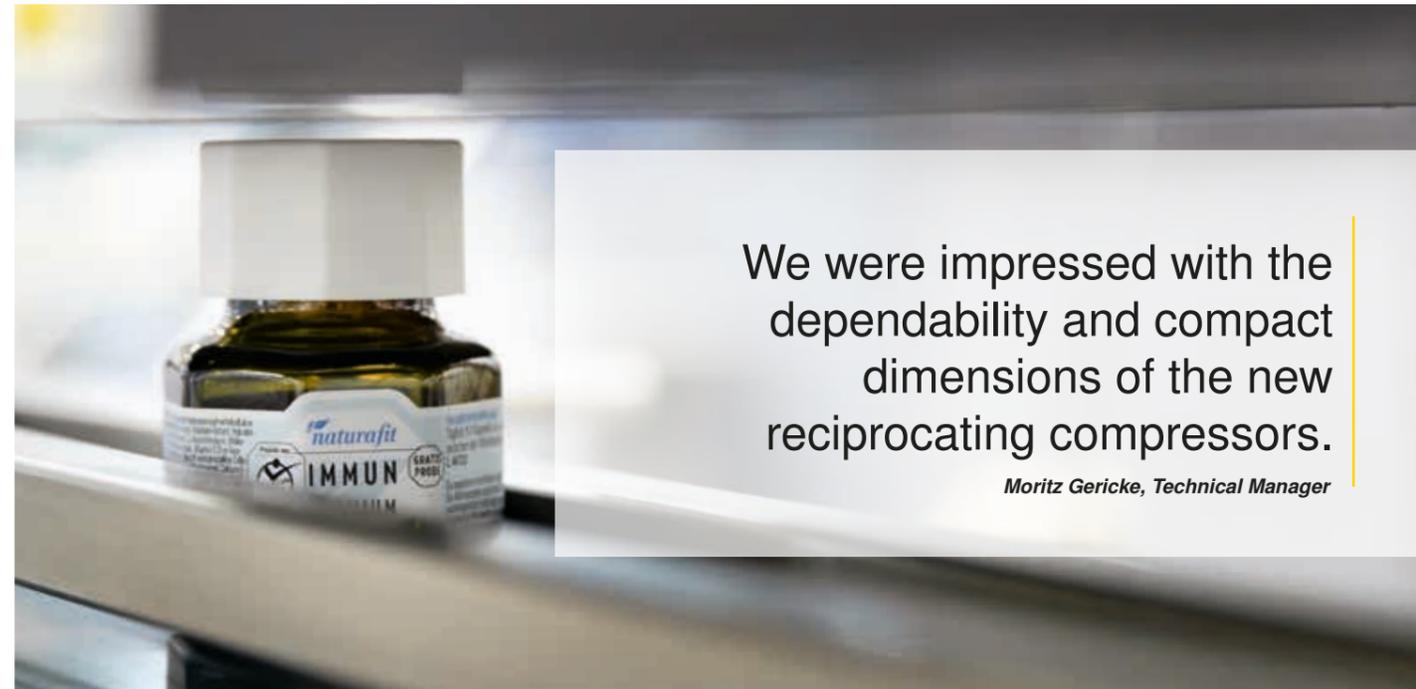
Image: AdobeStock

Compressed air is used for the packaging process.

The advantage of manual production is that industrial additives can be dispensed with.



naturafit's characteristic octagonal packaging.



We were impressed with the dependability and compact dimensions of the new reciprocating compressors.

Moritz Gericke, Technical Manager

Compressed air for capsule production

It's true – even a capsule manufacturer needs compressed air. As in so many industries, it is predominantly required to power pneumatic drives, but also to clean and polish the finished capsules. This means that for short periods the compressed air demand can be significantly higher than normal – an important point when it came to designing the compressed air station. Up until a certain point, the ever-increasing air demand of the burgeoning company was met by a solitary KAESER reciprocating compressor with downstream dryer and treatment. "The reciprocating compressor was always very dependable and so we were perfectly satisfied," remembers Moritz Gericke, Technical Manager at naturafit. However, with the expansion and relocation to Röttenbach the compressed air demand grew, until the time came to invest in a modern air station that would guarantee a reliable and future-proof supply for production. And so Moritz Gericke got in touch with his longstanding contact partner at KAESER. The ideal solution for the prevailing demand was provided by three KAESER i.Comp 9 Tower T reciprocating compressors (pressure up to 11 bar, flow rate from 404 to 570 l/min), which easily cover the total requirement of 1,500 l/min. Support for temporary demand peaks is ensured thanks to a 900-litre air receiver. With i.Comp TOWER T versions, the compressor block, air receivers, refrigeration dryer and SIGMA

CONTROL 2 controller are all encapsulated within a single housing to provide a connection-ready complete system. Compact dimensions mean these powerful reciprocating compressors feature a footprint of under 1 m². Furthermore, with a maximum sound pressure level of 65.7 dB(A) they perform exceedingly quietly. The roto-moulded PE enclosure conceals an oil-free reciprocating compressor with a speed-controlled motor that always delivers the exact volume of compressed air required by the application. The standard-equipped internal SIGMA CONTROL 2 controller ensures the system is network-capable, making connection to a master controller possible. Since the compressed air demand fluctuates strongly, KAESER field representatives recommended networking the individual components with a SIGMA AIR MANAGER 4.0, in order to achieve equal utilisation of all three compressors, as well as the greatest possible cost efficiency for the overall compressed air supply. The result is maximum efficiency, an important advantage for a climate-neutral company heavily engaged in the push for sustainability.

Kitchens for life



Energy efficiency and first-class service

One of the top three kitchen furniture manufacturers in Germany, Schüller Möbelwerk KG has experienced consistent growth for many years now. As demonstrated by its motto of “Economics do not work without ecology”, environmental protection is at the forefront of the company’s thinking, an approach reflected in responsible production, eco-friendly manufacturing systems and the use of certified materials.



Expert kitchen furnishings manufacturer Schüller Möbelwerk KG produces around 170,000 kitchens per year in the town of Herrieden, equating to an average of 760 per day. From here they are delivered to customers in more than 35 countries worldwide. This logistical tour de force is the result of perfectly aligned processes for procurement, production, logistics, organisation, marketing and distribution. Individual labelling means that every single part of a customer's kitchen can be precisely identified with the specific order throughout the entire production process on state-of-the-art production lines, until being brought together, tested multiple times in accordance with strict quality management guidelines, meticulously assembled by dedicated specialists and finally made ready for despatch.

Sustainability and ecology

Sustainability and ecological balance are central to Schüller's outlook – a focus manifested in the responsible production operation with millions invested in eco-friendly manufacturing machines, not to mention factors such as the heating system that operates using scrap wood, ISO 50001 certification for sustainable energy management, and a fuel-saving HGV fleet that meets Euro 6 standards. A central pillar of this ecological modus operandi is the material from which the kitchens are produced: the wood and woodworking materials used are certified by the PEFC (Programme for the Endorsement of Forest Certification), an initiative promoting ecological balance. Gerhard Wallerang, Project Engineer for Energy and the Environment, has for many years pursued the objective of gradually optimising the energy efficiency of the production systems, and of the compressed air stations as well. In his role as the company's Energy Management Officer, he brings not only detailed knowledge of the subject matter, but also access to the comparison figures and key performance indicators required for a permanent improvement strategy. Optimising a compressed air supply includes ensuring dependable cover for the air demand associated with an ever-growing number of production systems that depend on this source of energy. As the years have gone by, more and more compressors and treatment components have been added to the system: "The continuous growth we've experienced over the years demanded constant optimisation of all our technical

systems. For the best possible energy efficiency and technical standards, we often took the decision to purchase new and ever more efficient production systems and to relocate existing ones internally if a new location could improve the workflow," explains Gerhard Wallerang.

When considering the required increase in compressed air supply as part of an expansion project to provide Production with four new halls (commissioned in 2022), he assumed – taking into account both the required redundancy for the new sys-

tem and expected future expansion as well – a target requirement of approximately double the previous capacity. Until then the required flow rate had been approx. 121 m³/min, supplied by a total of ten compressors divided between three air stations. The new station, the fourth, would need to produce the same amount of compressed air as the existing stations put together, and at the same time be as energy-efficient as possible.

One of the most important points for us was the outstanding service provided by the local KAESER partner.

Gerhard Wallerang, Project Engineer for Energy and the Environment

tem and expected future expansion as well – a target requirement of approximately double the previous capacity. Until then the required flow rate had been approx. 121 m³/min, supplied by a total of ten compressors divided between three air stations. The new station, the fourth, would need to produce the same amount of compressed air as the existing stations put together, and at the same time be as energy-efficient as possible.

Maximum savings

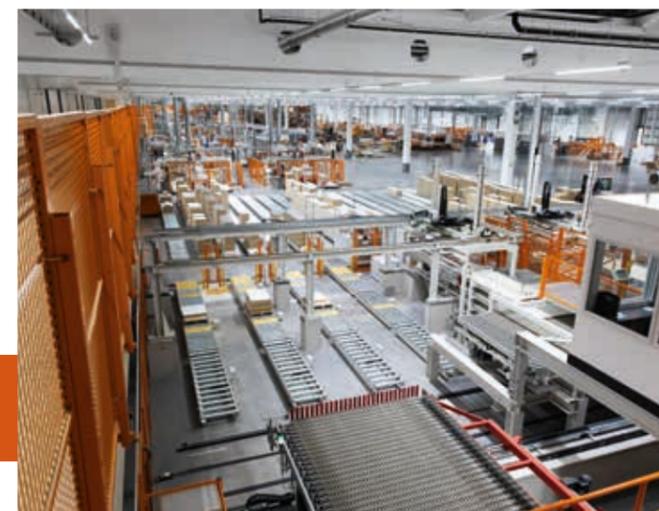
Accordingly, Gerhard Wallerang's proposal – in collaboration with the local KAESER partner – was to install five DSD 205 rotary screw compressors (to-

tem and expected future expansion as well – a target requirement of approximately double the previous capacity. Until then the required flow rate had been approx. 121 m³/min, supplied by a total of ten compressors divided between three air stations. The new station, the fourth, would need to produce the same amount of compressed air as the existing stations put together, and at the same time be as energy-efficient as possible.



Image: AdobeStock

Schüller produces 760 kitchens per day.



Compressed air is required for the suction machines that are used to lift large production pieces (via the Venturi principle).





Fully automated metal finishing

Compressed air takes centre stage in an energy savings plan

Metal finishing specialist Huber recently implemented an extremely successful, multi-faceted energy savings plan.

Austrian metal finishing expert Huber, located in the Tyrol, is an industrial service provider specialising in zinc and zinc-nickel alloy coatings. Established in the 1960s, the company has made itself future-fit thanks to a variety of optimisation measures, with a new compressed air station playing an important role in its comprehensive energy savings plan.



Image: AdobeStock

The headquarters of this metal industry supplier are located in the municipality of Schwoich, which encompasses 3,000 inhabitants in the Austrian state of Tyrol, 5 km south of Kufstein. Now a family-run industrial operation headed by two Managing Directors, Gerold Huber and Stephan Zellner, the company was originally founded in 1965 by Bernhard Huber as an electroplating workshop and has since grown from a simple trades operation into an industrial service provider catering to customers in Austria, Germany, Italy and Czechia. Coating of industrially produced series components is achieved by means of fully automated, computer-controlled systems, which across all areas rely on automatic compliance with the respective process parameters. Two different procedures are used: cartridge-drum processing (a drum system developed in-house for coating extra-long connection elements) and drum processing (for coating pourable bulk materials).

Energy savings plan

The coating of surfaces is extremely energy-intensive. For this reason, the subjects of energy cost control and reduction of greenhouse gas emissions are of primary importance to the two Managing Directors. "The best kind of energy is one you don't need," grins Gerold Huber. Stephan Zellner adds: "For that reason, we initiated a project some time ago with the aim of realising the available energy savings potential at all levels of the business. The project was really successful – by employing a wide variety of different measures, we were able to halve our electricity costs and reduce the previous seven gas boilers to just one. And optimising the compressed air supply also played a big part in the project." A dependable supply of compressed air is absolutely essential for production: in addition to pneumatically controlled cylinders and valves, the diaphragm pumps that play a central role in fully automated coating processes also rely on compressed air (required pres-

sure 5.4 to 6.8 bar, flow rate 5.53 m³/min). Their review of the old station revealed that modernisation of the compressed air supply would bring with it huge energy savings potential: "The three old compressors incurred high maintenance costs, were too large – which meant they unnecessarily consumed lots of energy – and did not feature modern controllers, so the system had to run more or less continuously," explains Stephan Zellner. "We were looking for a compressed air systems provider that matched our philosophy and could meet our expectations in terms of engagement and results. We were very satisfied with the support we received from the KAESER team in Linz." To achieve the most energy-efficient design for the machines that would be installed, KAESER's system engineers wanted to know details such as the length of the compressed air line and the size of the air receiver. Bearing in mind that every 1-bar reduction in system pressure results in an energy saving of 6 percent, particular attention was paid to determining the ideal pressure level needed to dependably cover the requirements of production whilst remaining low enough to optimise energy consumption. To this end, numerous design concepts were considered and the corresponding simulations

run. The end result was a new compressed air station comprising three type ASD 60 rotary screw compressors, two energy-saving SECOTEC TE 122 refrigeration dryers, a SIGMA AIR MANAGER 4.0 master controller, an AQUAMAT CF 38 oil-water separator and various compressed air filters. Moreover, the project included complete piping, power supply and exhaust/inlet air

The most important success, however, was the achievement of the project objectives as laid out in the energy savings plan – a success in which the new compressed air station played an essential part.

We felt confident that we were in good hands with KAESER. Their collaboration was motivated, engaged and target-oriented.

Dr. Stephan Zellner, Managing Director

ducting. Installation was achieved with the plant remaining in operation – no downtime was necessary. The two Managing Directors were completely satisfied with the implementation and end result of the project, particularly valuing the pleasant collaboration and outstanding commitment shown by KAESER.

The compressed air station played a large part in the successful plan.



Preparation and charging for the coating of pourable bulk materials takes place in these lifting-and-tilting devices (drum processing).



The traditional and the modern



Prepared for future challenges thanks to new turbo blowers

Landshut in Lower Bavaria is the setting for a wonderful historical spectacle that takes place every four years and is known worldwide as the “Landshut Wedding”. The event attracts amazed onlookers from across the globe who, thanks to the more than 2,000 participants in authentic traditional costume, find themselves transported back to the Middle Ages and the year 1475.

The town of Landshut celebrates this festival commemorating the wedding between Hedwig, daughter of the Polish king, and Georg, son of the Duke of Landshut, every four years – demonstrating how important the town’s historical roots are to its inhabitants. During this event the population of the town doubles, which creates an obvious challenge for the local wastewater treatment plant.

The Landshut Dirnau treatment facility, commissioned in 1989 as a two-stage aeration plant, provides mechanical, biological and chemical treatment for the daily municipal and industrial wastewater from the town and its neighbouring communities. Here the wastewater passes through a variety of stations for the removal of solids and chem-

icals. In the first stage, solid particles are removed in a mechanical process. Next, microorganisms are used to biologically purify the water through a number of cleaning stages that break down contaminants, nitrates and phosphates. In the digestion towers, biogas is extracted from the resulting sludge which is subsequently used to generate renewable electricity and heat. All of these technical processes are monitored and controlled by highly qualified personnel using state-of-the-art process control technology.

Air for microorganisms

Inside the aeration tanks, microorganisms present in the

activated sludge break down the organic contaminants into carbon dioxide (CO₂) and elementary nitrogen (N₂); phosphorous is released as phosphate and chemically precipitated. In order to be able to do their job, the microorganisms must be provided with plenty of oxygen. Until the recent refurbishment, the air supply was handled by three ageing turbo blowers, and it had been

recognised for some time that in the event of a breakdown with the 30-year old blower controller, it would be impossible to find replacement parts. Thus the plant operator’s thoughts had long since turned to how the future air supply for the aeration tanks should look. Current air demand for the existing four tanks varied between 4,000 and 12,000 m³/min, with a required pressure of approx. 400 mbar. When it came to writing the tender for procurement of the new turbo blowers, the operator targeted a solution that would deliver significant energy savings and also be able to cover any future expansion of the plant. To meet the required performance range, KAESER suggested three

The new turbo blowers are more efficient and easier to control, which saves us around 200,000 kWh of electricity per year.

Benjamin Siegert, Manager – Landshut Treatment Plant

transmission between motor and impeller, in addition to variable-speed flow rate control. The wear-free magnetic bearings enable virtually unrestricted start-stop op-



The new MP 6000 turbo blowers were the best choice for the required performance range.

MP 6000 turbo blowers (flow rate 1,300 to 6,800 m³/min, pressure 300 to 1,200 mbar). Directly coupled, oil-free compression turbo blowers from KAESER are especially dependable and energy-efficient thanks to their high-speed motors, and stand out for their exceptional flexibility. The turbo impeller and motor shaft start, stop and rotate by means of magnetic bearings, making them completely wear-free and without need of maintenance. This future-oriented turbo blower design is used for low-pressure applications with high flow rates and particular need of energy efficiency and process air availability. To achieve especially high efficiency, machines feature direct power

eration for intermittent aeration processes, whilst perfect interplay between all components and the intelligent controller permits energy savings of up to 25 percent. Moreover, due to the calculated savings, the purchase was eligible for a subsidy in accordance with municipal guidelines. Benjamin Siegert, manager of Landshut treatment plant, declares himself more than satisfied with the new turbo blowers from KAESER, which in comparison to their older machines are saving around 200,000 kWh of electricity per year (equating to around 10 percent). Benjamin Siegert enthuses, “With this purchase, we are well-prepared to face the future.”



All processes are monitored and controlled by highly qualified personnel using state-of-the-art process control technology.



Image left: The microorganisms require oxygen for the process of breaking down contaminants.
Image centre: A bird’s eye view of the treatment plant.
Image right: The in-house laboratory continuously monitors all process values.

Keeping an eye on costs with SIGMA AIR UTILITY



SAXONIA's BRAZETEC product line, which emerged from the predecessor company Degussa Löttechnik, is a leading manufacturer of solders, solder paste and solder flux, which it specially tailors to user requirements through customer-specific developments and adjustments. BRAZETEC products are used in a wide variety of industries, including the automotive and drive technology sectors, system engineering, refrigeration and climate control system production, and the tooling industry. One of the most important product groups for the company comprises hard solders in the form of silver alloys, as well as copper-based and special solder alloys. Soft solders with a melting range significantly lower than that of the hard solders also feature in the product range; these are particularly useful for the installation technology and foodstuff industries. Meanwhile, when it comes to power technology, everything hinges on contact materials for switching applications, fuse materials and special products for power generation. The company's product range in this area encompasses functional materials for the lighting and electronics industries, as well as for the vehicle technology and power generation sectors.

New facility at Alzenau

BRAZETEC recently moved to a new site at Alzenau; the operation there has been in full swing since March 2023. The extent of production is impressive: the raw material (e.g. silver, zinc, copper) is first melted in the specified mixture ratio and then cast into "slabs", which are subsequently processed, cut, formed, pressed, etc. in line with customer requirement.

One element is vital for all areas of production: compressed air. On our recent tour of the new, bright manufacturing halls, we encountered it at every single workstation,

where it is necessary for powering all pneumatic applications (material feed, grips, manipulators), in addition to as blowing air for cleaning machine components in different areas of the factory. At the old facility in Hanau, the compressed air was a purchased product; whilst costs were relatively high, the advantage was cost transparency in the form of a monthly payment. It was this benefit that Uwe Barget, Project Manager for New Construction and Facility Management, wanted for the new location as well when he paid a visit to KAESER's sales engineers. It goes without saying that energy efficiency, cost effectiveness and dependability were also essential criteria for the new compressed air station. For the design

compressed air supply. Put simply, all the customer has to do is provide a few square metres of space and KAESER takes care of the rest. Instead of investing in a complete compressed air station, BRAZETEC only pays for the compressed air it actually uses. A further plus point: all prices remain fixed for the duration of the contract. With the station in reliable operation since March 2023, the concept has impressed to say the least. "The compressed air is available in exactly the right volume as and when we need it," beams Leonardo Galante, manager for maintenance and tool construction at Alzenau. "And the best part is that, thanks to the plate-type heat exchangers integrated into the compressors, we can

use the exhaust heat for space- and service water-heating, which saves us around 6,000 Euros in the winter months. All in all, we're extremely satisfied with the KAESER station."



Image left: Fluxes are part of the product range from this leading manufacturer.

Image centre: The prepared raw material is further processed into customer-specific products in multiple stages.

Image right: The SIGMA AIR MANAGER 4.0 provides operating data at a glance.

Image below: With the SIGMA AIR UTILITY model, BRAZETEC only pays for the compressed air it actually consumes.

data, they were able to use the consumption values for Hanau: flow rate approx. 10 m³/min, system pressure approx. 6.5 bar, ISO purity class 1:3:1. On this basis, KAESER provided a quotation for the contracting model of operation (SIGMA AIR UTILITY). Today, the compressed air requirement for the new facility is dependably supplied by an air station consisting of three rotary screw compressors (ASD 50, ASD 60 and ASD 60 SFC), two DC 133 desiccant dryers and a variety of filters.

Thanks to networking of all components in the station via the intelligent SIGMA AIR MANAGER 4.0 master controller, comprehensive monitoring, energy management and predictive maintenance are all possible, thereby minimising downtime and maximising production performance.

In accordance with Uwe Barget's wishes, the highlight of this system concept is the SIGMA AIR UTILITY operator model, which provides the company with a tailored



The contracting model is an excellent solution for our company – the compressed air is there whenever we need it and the monthly charge makes cost planning easy.

Leonardo Galante, Manager – Maintenance and Tool Construction

Efficiency and eco-friendliness

BRAZETEC, a subsidiary of the SAXONIA Group, is a worldwide leader in the manufacture of high-quality solders, solder paste and solder flux. Its products can be found in a wide variety of industries, from the automotive and drive technology sectors to system engineering, refrigeration and climate control system production, and tool manufacturing. With the compressed air station at its new facility in Alzenau – operated via the contracting model – the company is leaving cost management stress far behind.

Leading the way with eco-friendly insulation systems

In harmony with nature

GUTEX is a market-leading European manufacturer of ecologically sound insulation systems produced from wood fibre. Since its founding in 1932, the company has become an expert in climate-friendly insulation solutions for building facades, roofs and extensions. With its focus on innovation and quality, GUTEX uses every single fibre sustainably, thereby making optimum use of this natural resource.

Sustainability comes naturally to the southern Black Forest. Here a raw material grows in abundance that is tailor-made for comfortable, salubrious and energy-efficiently insulated buildings: wood. GUTEX's high-quality insulation solutions for building facades, roofs and extensions, manufactured from local spruce and pine, impress with their high energy efficiency and have been awarded the natureplus quality label for environmentally friendly construction products. Now in its fourth generation of family management, the company employs 260 workers and generates around 135 million Euros in annual turnover from the manufacture of all kinds of wood-fibre insulators, including panels, matting and loose-fill, blown-in insulation. In May 2023, three construction projects were selected to receive the German Timber Construction Award, one of

which was the new "Buggi 52" residential and commercial building in Freiburg – with insulation supplied by GUTEX.

A new facility for sustainable production

After just two years of construction, in autumn of 2023 GUTEX inaugurated a second plant at the Breisgau Business Park in Eschbach, representing an investment of over 100 million Euros and providing up to 120 new workstations. The new location demonstrates GUTEX's unwavering commitment to sustainability, as well as the continuous growth experienced by the company. The use of district heating, biomass, green energy and steam recycling enables completely CO₂-neutral power generation and sets a new benchmark for the industry. In order to ensure that construction of the

new facility was equally resource-friendly, wood and wood fibre insulation were used wherever fire safety laws permitted.

It goes without saying that a compressed air supply was also required for the new facility at Eschbach. As is the case in other industries, it is primarily required here as control air for valves and pneumatic systems, but also for cleaning purposes (dust filtration for biomass systems and other technical applications throughout production). When seeking a suitable compressed air systems provider, Plant Manager Oliver Bauch was conscious that the sustainability concept that permeated the entire construction project at Eschbach must apply equally to the air station: "Compressed air is essential for us, but we also need it to be as efficient as possible."

The requirements were as follows: system pressure around 7 bar, purity class 1:3:1 as per ISO 8573-1 and plenty of redundancy. Multiple quotations were received, amongst which the one from the nearby KAESER partner in Eschbach particularly stood out.

High-tech treatment concept

Oliver Bauch was impressed with the proposed design concept. The compressed air is supplied by three different KAESER rotary screw compressors (a DSD 205, a DSDX 305 and a frequency-controlled DSDX 305 SFC); however, a particular highlight of this station design in terms of cost efficiency is the compressed air drying by means of two HYBRITEC DTI 668/902 combination dryers, which unite the ultra-low pressure dew points of desiccant dryers with the energy-saving operation of modern refrigeration dryers. The result is a flexibility that massively reduces energy costs. During periods when only moderate PDPs are required – in the summer months, for example – the desiccant portion of the dryer can simply be switched off. All-in-all, combination dryers from KAESER save around 50% of the energy requirement associated with heat-regenerating desiccant dryers and 20% of that with heatless-regenerating versions. A further innovation highlight in the area of compressed air treatment is the AQUAMAT i.CF, the first intelligent oil-water separator. Featuring the Aquamat Control controller, this system redefines condensate treatment by taking on active management of the process, thereby making maintenance work predictable, simple and environmentally friendly. To ensure ecologically sound and energy-efficient operation there is also

Compressed air is essential for us, but we also need it to be as efficient as possible.

Plant Manager



The new AQUAMAT i.CF is the first intelligent oil-water separator.

a SIGMA AIR MANAGER 4.0 compressed air management system, which controls and monitors all components in the station with exceptional cost effectiveness. Calculations show that annual energy savings amount to some 332,000 kWh.

The icing on the cake for this climate-friendly and economical solution is the ingenious heat recovery concept, which enables ex-

haust heat from the compressors to be used for heating the offices and generating hot water. Heat recovery therefore provides a third strand to GUTEX's forward-thinking energy strategy, in addition to the use of district heating and biomass. Oliver Bauch is extremely satisfied with this solution: "The new compressed air station is a perfect fit for our environmentally responsible, resource-friendly design concept for the whole construction project at Eschbach."

Marcus Wagner (KAESER) and Andreas Epp (apikal) in conversation.





Image: AdobeStock

The efficiency increase achieved by refurbishing the compressed air station is around 25 percent.

Maximum efficiency for the textiles industry

An Italian family history

For textile manufacturers wishing to reduce their operating costs and environmental impact, energy efficiency is every bit as essential a priority as it is in other industries. The use of compressed air for processes in the textiles sector provides a valuable opportunity to improve energy efficiency. With this in mind, Italian producer Cervotessile S.p.a. recently invested in refurbishment of the compressed air station at its production facility in the northern town of Bogogno.

The story of family-owned textiles manufacturer Cervotessile goes back to 1815, when company founder Gaspare Sironi began to have the yarn that he had lovingly selected himself handwoven into quality fabrics, and in doing so laid the groundwork for what was to become a highly successful industrial-scale operation. Towards the end of the nineteenth century the handlooms began to disappear, replaced by the earliest mechanical looms, which could be used to produce high-value textiles and lining materials. Subsequent generations of the family introduced their own important innovations and improvements, thereby building success through a shared family vision sustained over the course of many decades. Today the company trades worldwide under the name of Cervotessile S.p.a. Rich in a traditional history that marks it out from its competitors, it is renowned for manufacturing responsible, high-quality products that are permeated with Italian handweaving heritage, combining excellence and harmony, research and development, usability and beauty. Cervotessile has perfected the ancient art of textiles whilst at the same time refining production technology and enhancing sustainability throughout the entire value chain. This approach consists of, for example, selecting sustainable and

fairly produced raw materials, employing low-emissions production processes and using highly energy-efficient systems.

Compressed air under the spotlight

In keeping with this approach, the compressed air station at Bogogno recently underwent an in-depth review. Compressed air plays an important role in textiles manufacturing, since it is used to power the weaving machines. This makes dependability an absolute must – as is the energy efficiency of the complete system.

For the first step towards refurbishing the system, an ADA (Air Demand Analysis) was conducted in order to determine customer-specific variables such as air flow, system pressure and energy consumption: data that are essential for designing the

perfect compressed air station. Next, KESS (Kaeser Energy Saving System) software was used to simulate different design options using the customer's individual consumption profile and thereby to identify the perfect solution. The result was a realistic virtual working scenario that provided the basis for calculating the dimensions necessary to select the optimal components for the station. These comprehensive analyses and simulations produced an air station comprising five KAESER machines: two type DSD 240 (rated power 132 kW) and three type DSDX 305 (rated power 160 kW) rotary screw compressors, one of which is equipped with a frequency converter. Of course, in addition to generation, treatment is a vital element of a dependable compressed air supply. In this case it is provid-

ed by four SECOTEC TG 960 refrigeration dryers and four KS 700 coalescence filters. What is more, the treatment components are protected by the KAESER-developed DHS 4.0 electronic air-main charging system, which reliably guarantees compressed air quality in accordance with ISO 8573-1. As with all other components in the system, the DHS 4.0 is connected to a SIGMA AIR MANAGER 4.0 master controller, which controls and monitors the station in real time, thereby ensuring best possible energy efficiency and enormous, wide-ranging energy savings.

Objective achieved

Refurbishment of the compressed air station has brought with it significant advantages: distribution of the overall capacity

amongst multiple machines has introduced greater flexibility and the ability to react more effectively to fluctuations in production. Moreover, the high technical standard of the station has reduced damaging emissions on a number of levels. For example, lower electricity consumption has reduced CO₂ emissions, whilst the heat recovery system that reuses the energy from compression has decreased the amount of gas required for heating purposes, leading to fewer climate-damaging emissions.

A cost-benefit analysis reveals that the modernisation programme has resulted in an increase in efficiency of around 25 percent, which represents an advantage for the operator not only in terms of the associated cost reduction, but also because this makes the company eligible for GSE certificates. These tradeable securities are energy-efficiency certificates issued by the Italian energy services operator Gestore dei Servizi Energetici.



Image left: Cervotessile is renowned for its high-quality products that are rich in traditional history.
Image right: The new compressed air station comprises five rotary screw compressors from KAESER.

Image: AdobeStock

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