

## EDITORIAL



*Philipp Bayat, Dr. Monika Bayat, Heinz Bauer (l. to r.).*

As the pandemic situation takes a more positive turn, we can look into the future with confidence and optimism. With this in mind, we can now turn our attention to a major company event: the 75th anniversary of BAUER KOMPRESSOREN. It is by no means common for a medium size enterprise to retain its position as industry leader for such a long period – particularly in the present situation, dominated by fundamental technological upheavals and rapidly advancing digitalization. But as our company history clearly shows, our success is based on our innovative spirit and visionary future planning, coupled with BAUER’s uncompromising quality standards – and the dedicated commitment of all of you, our workforce. Our warmest thanks go to you! In a world where rapid change is the order of the day, let’s continue working together to shape our successful future!

Heinz Bauer, Dr. Monika Bayat  
Philipp Bayat

## BAUER KOMPRESSOREN 75 YEARS OF SUCCESS – GROUNDS FOR CELEBRATION



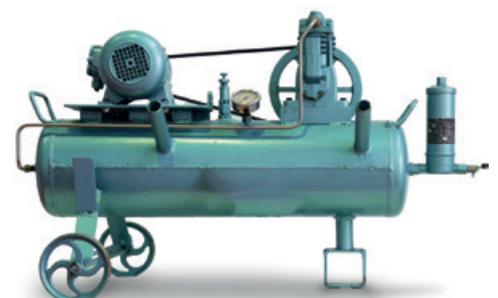
*The first headquarters in Wolfratshausen Strasse*

2021 provides BAUER with a very special reason to celebrate – our company can proudly look back over 75 years of history.

### The beginnings

BAUER’s success story started in 1946, after the end of the Second World War. Engineer Hans Bauer, having studied in Munich and gained experience at prestigious mechanical engineering firms, decided to set up his own company. Engineering design was already in his blood; his grandfather had established a smithy in 1888 and later successfully moved into agricultural machinery manufacturing. Hans Bauer’s new venture began with just three employees and was based in his own home, a historical nineteenth-century villa on Wolfratshausen Strasse in Munich. In 1948 a gradual

economic upturn began in the three Allied zones in Germany after the introduction of the deutschmark. The first product made by the fledgling company was a single-stage compressor designed to be installed on a tractor and used to inflate tractor tyres. The low-pressure boiler compressor was named “Universal 1” and delivered 100 litres of compressed air per minute at 7.5 bar. It became a huge success, with

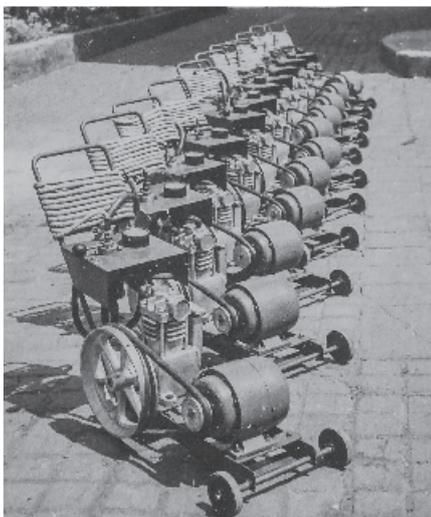


*The Universal 1 – a best-seller from the start!*



*Hans Bauer – a visionary entrepreneur*

orders pouring in – at first mainly from abroad. In 1950, BAUER received an order from Greece for 11 low-pressure compressors, and a further order for 150 compressors followed from Portugal as the new company's first large-scale contract. This success soon meant that the production facility had to be enlarged, and a vast wooden shed, 300 square metres in area and three metres high, was constructed next to the BAUERs' home. Further buildings were added in quick succession as sales increased.



*The first major export order came from Greece*



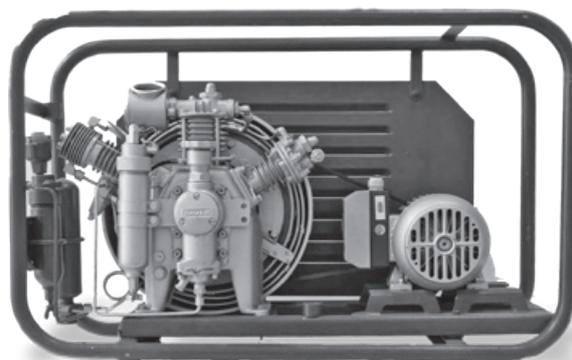
*Heinz Bauer with mother Creszenz and father Hans*

### Entering the high-pressure market

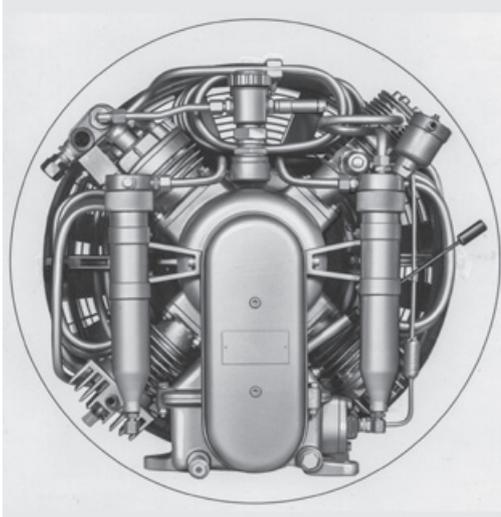
1954 saw a new chapter in BAUER's history unfold when a businessman contacted the company with an enquiry for 1000 mobile diving compressors for the US market. At that time BAUER KOMPRESSOREN had no experience whatsoever in high-pressure compressors, so that the new machine would have to be designed and built from scratch. At the end of 1956, the UTILUS (Unseren Tauchern Immer Luft Und Sicherheit; Always safe and reliable air for our divers) finally made its debut. The grandfather of all modern sports diving compressors, it quickly took the diving world by storm. The compact pe-

trol-driven compressor was used for diving operations all over the world, including on the research ship of the renowned oceanographer and diving pioneer, Hans Hass, on his research ship, "Xarifa". Less than two years later BAUER launched a further iconic name in sports diving – the legendary K14, complete with a fourth compression stage. The X-arrangement of the cylinder banks provided ideal mass balancing, ensuring BAUER's new flagship model ran more smoothly and quietly than any preceding compressor, and its rugged bearings guaranteed an exceptionally long service life. This feature would smooth the path for entering

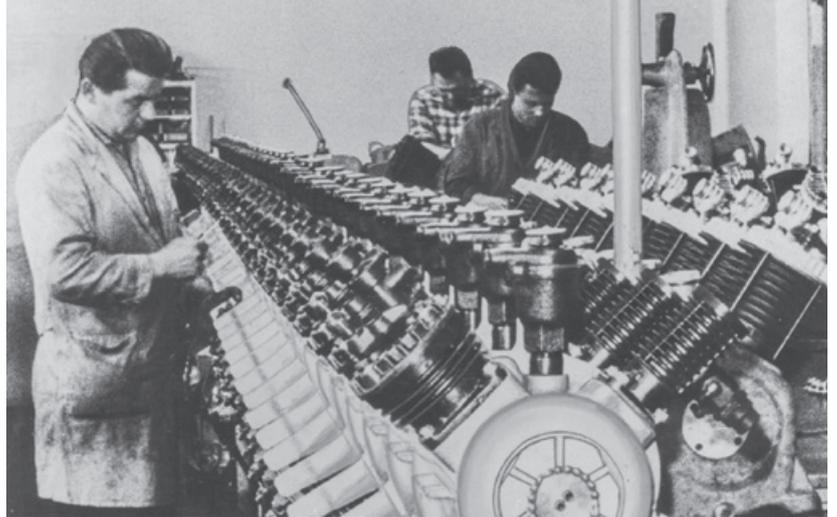
the industrial market. As a building boom developed in the 1950s, BAUER's sales soared and further expansions to the production facilities were needed. In 1957 a new cutting-edge assembly facility was opened in Geretsried Gar-



*Indestructible: the electric-drive UTILUS in crash frame*



*The K14 – an icon in the world of sports diving*



*All lined up – the assembly line for the four-stage K14 block*

tenberg. The mobile diesel-powered systems became a huge export success. They were rugged enough to be used in situations like the Siberian tundra, testing the leak-tightness of thousands of kilometres of newly laid pipeline. In response to industry demand for ever-increasing free air delivery rates, a new large-scale compressor series was launched in 1975, starting with the K22 with a power rating of 18.5 kW. At the same time, BAUER increasingly expanded its compressor models into complete systems.

### **BAUER's international growth**

Quick to realize the importance of an international profile, BAUER pursued a consistent policy of global expansion. As early as 1964, exports accounted for an impressive 80 per cent of sales. Thanks to the outstanding reputation of the company, it won major projects including for compressed-air control systems for the turbines of the Aswan Dam in Egypt. In 1971 BAUER acquired the Austrian compressor manufacturer POSEIDON, which later became the company's first international subsidi-

ary. And a further new chapter of BAUER's history opened in 1976 when BAUER COMPRESSORS was founded in the US city of Norfolk, Virginia. This step was BAUER's passport to conquering the foremost global market. Three years later, a state-of-the-art manufacturing centre was set up in Munich on Drygalski Allee, featuring high production capacities and modern CNC processing methods that laid the foundations for BAUER's global growth. ROTORCOMP became part of the company in 1980, providing new screw com-



*The turbines of the Aswan Dam*



*The new BAUER plant in Azalea Garden Road, Norfolk, Virginia*



*A giant leap forward – the new premises in Drygalski-Allee*

pressor modules with patented high-efficiency profile that opened up completely new sales markets for BAUER. Over the next decade BAUER went from strength to strength as a multinational group. Further subsidiaries were founded in Japan in 1985, France in 1986, Italy in 1994 and the UK in 1995.

### **Driving innovation with breathing air**

An array of new developments in the field of breathing air were introduced,



*German Chancellor Angela Merkel personally inaugurates the first ADNOC CNG fuelling station*

representing a giant leap forward for BAUER in technology terms. A BAUER advertising poster of the time showcased “The purest mountain air – under water”. The unique patented filter monitoring system SECURUS, launched in 1981, was followed in 1984 by AIR-LAB, a measurement system ensuring the compressed breathing air supplied by BAUER systems complied with all relevant limit values from the applicable Breathing Air Standard. 1987 saw the launch of VERTICUS, a completely new compressor concept in which the compressor block and drive system were arranged vertically – as the name implied. This groundbreaking development marked a new milestone for the market and for BAUER’s product history.

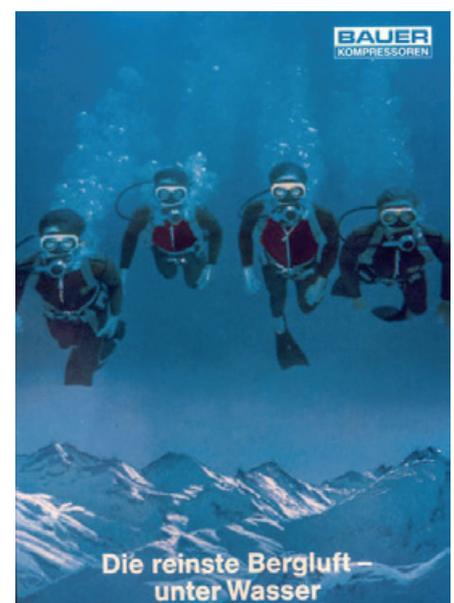
### **A flying start to the new millennium**

As the new millennium started, BAUER continued to develop and evolve apace. Two new plants were built and internationalization proceeded rapidly, with a further seven subsidiaries added between 2008 and 2013; Egypt, India, China, Australia and Russia were followed by Spain and South Korea. A major order from Abu Dhabi for natural gas



*POSEIDON firefighting model in striking orange and black finish*

fuelling stations heralded a new dimension for the booming fuel station sector as Fuel Gas Systems became one of BAUER’s most strategically crucial areas of operations. Previous years had already shown that further growth would only be possible if accompanied by huge expansion of production capacities. In 2001, a block and component manufacturing company was established on a 500-square-metre site. The new plant, named UCC (**UNI**versal **C**ompressors and **COMP**onents), marked BAUER’s evolution from a factory to a full-scale end-to-end operation. With the plant in 2014, BAUER is once



*BAUER breathing air – synonymous with diving safety*

**DID YOU KNOW?**

## How biogas is produced



Biogas is produced when organic material decomposes in an airtight fermentation tank. The anaerobic bacteria produce a gas with a high moisture content. Untreated (raw) biogas contains around 45% CH<sub>4</sub> (methane) and approximately 55% CO<sub>2</sub> (carbon dioxide). It is also heavily contaminated with sulphides. In the first step, the aggressive sulphur compounds are removed by means of filtration. To maximize the energy content of the gas, the percentage of CH<sub>4</sub> is increased – generally by using membranes with a pore size designed to filter out the carbon dioxide, which is then released into the air or collected for further use. The biomethane which results is still saturated with moisture, which is generally removed using a process known as pressure swing adsorption (PSA). The biomethane left after PSA is now of equivalent quality to natural gas as specified in the G 260-I rules and worksheet of the DVGW, the German gas and water industry association. Before being used further it is odorized – in other words, an odorant is added to immediately signal escaping gas. The first option for using the biomethane is to feed it into the national gas grid after compression. To do so, the compressors used for the purpose must naturally reach higher compression rates than that of the grid itself. ROTOR-

COMP screw compressors are generally used to achieve nominal pressures of 16 bar (PN 16), while higher pressures of up to 70 bar (PN 70) in the gas transport pipelines can only be delivered by a BAUER piston compressor. As an alternative, the biomethane in natural gas quality can be used in the same way as CNG for direct refuelling of biomethane-powered vehicles at a BAUER gas fuelling station. A high-pressure compressor initially compresses the gas to 300 bar before it passes into a storage unit with three internal segments. Vehicles are fuelled with gas at 200 bar from the “low bank”. If the pressure in the low bank falls below this level as gas is removed, refuelling is completed by switching to the medium bank. The high bank is a reserve for use in extreme peak periods. A priority sequencing control panel manages withdrawal of the gas during refuelling and ensure the three high-pressure storage banks are promptly refilled in time for further refuelling operations.

Heinz Bauer



*A second production hall enabled capacity to double.*

again setting the course for the future. Its new location created a highly efficient production environment for the latest VERTICUS generation with its new design, which had been launched at the same time. BAUER continued to set milestones with forward-facing technologies, including B-APP smartphone links, B-CLOUD connectivity and B-DETECTION for seamless end-to-end gas measurement.

Then came 2020 – the year when the whole world and its way of life were turned upside-down by the COVID-19 virus. But BAUER embraced the crisis as an opportunity and developed a patented virus filter named B-VIRUS FREE. This all-new product was able to eliminate 99.9 per cent of coronaviruses from intake air, as well as bacteria and specific mould and fungus spores. 2021 will go down in the company's history not (only) as its anniversary year, but also as the year in which BAUER successfully steered its operations through the global crisis. Future BAUER generations will remember it as the driver for developing completely new and future-facing products and technologies. ■

## BAUER KOMPRESSOREN GREEN MOBILITY

As climate change increasingly develops into an ever-present concern, the topic of sustainable mobility is moving into the spotlight. Climate-neutral biogas forms an important cornerstone of the plan; this renewable fuel can be compressed in the same way as conventionally produced fossil natural gas and used in standard gas-powered ve-

hicles. In addition, biogas has three major advantages over other renewable energy sources: it can be produced without the need for wind or sun, it is easy to store, and it can be transported to fuel stations using existing infrastructure. As part of BAUER's commitment to sustainable operations, the company supplies tailored turnkey systems globally for all needs and in all sizes.

For example, 80 BAUER fuelling stations have been installed in Sweden as a partnership with E.ON Sweden; the country has become a pioneer of climate-neutral mobility, promoting and



*Organic wholesaler Weiler GmbH in Coesfeld powers its fleet of trucks with its own biomethane fuelling station*



*In Sweden, biogas is produced by numerous standalone systems distributed across the country without connection to a national grid.*

funding renewable production of biogas as fuel. The lack of pipeline infrastructure was addressed creatively and refashioned as an advantage; biogas is now produced by numerous standalone systems distributed across the country without connection to a national grid. However, it still needs to reach local consumers, and BAUER has the perfect solution in the form of “mother and daughter stations”. The standalone gas production systems have BAUER high-pressure compressors which compress the gas and store it in large racks of cylinders. These storage racks are taken to local daughter stations in special transporter trucks for use in fuelling gas-powered vehicles.

Biogas as a fuel option is also advancing in Germany. Weiling GmbH from the German town of Coesfeld, west of Muenster, is just one example. The organic food wholesaler has adopted sustainability as its core philosophy. In future, the fleet of trucks used by Weiling to deliver goods to customers nationwide will be powered by biomethane produced from renewable sources. As there was no gas fuelling station anywhere in the vicinity to realize this vision, Wei-

ling decided to set up its own station close to its premises, and commissioned BAUER to design and construct one as a turnkey project. Gas is supplied to the new fuelling station at 3.8 bar intake pressure and is then compressed by a CS26.10-132 system to its final pressure of 300 bar. With free air delivery of almost 500 m<sup>3</sup>/h, the new station is designed to handle refuelling for Weiling’s current 20 tractor-trailers, while still having generous capacity reserves that will easily cover the fleet’s planned expansion to 30 trucks. Its modular design will also enable fuelling capacity to be increased in future if required by installing additional storage banks. ■

## BAUER KOMPRESSOREN HELIUM RECOVERY

BAUER has developed an all-new helium recovery system in an outstandingly compact design in response to

specific market demand. Standard systems which collect helium in bulky external gas balloons are often too big for many applications. Hospitals, laboratories and other medical facilities often work with small volumes of helium but have limited space. BAUER’s new G60 V system for helium recompression was designed specifically for cases like these.

The compact plug-and-play solution accommodates all the system components in a neat vertical housing that minimizes the machine footprint. As a standout feature, the gas balloon for helium collection is dimensioned in alignment with the system output and directly integrated into the housing. An ultra-compact compressor block compresses the helium from the balloon to 200 bar.

After passing through the integrated gas purification system, the compressed helium then has a sufficient purity level for processing by any condenser. The system thus makes an important contribution to conserving supplies of helium, a rare gas. At the same time,



*Plug-and-play solution: G60-V*

the system operator has the options of reliquification or resale to the gas supplier – a major area of potential for lowering operating costs. The integrated B-CONTROL MICRO enables the system to be connected to B-APP and B-CLOUD. It can also be extended with interfaces such as Modbus, Profibus and Profinet. ■

## BAUER KOMPRESSOREN ENVIRONMENTAL MANAGEMENT



*Environmental Management Officer Birgitt Schäfer*

At BAUER, environmental management is moving into focus as an increasingly important topic. Customers and partners alike are demonstrating growing interest in the ISO 14001 Environmental Management Standard, which maps out processes for improving resource efficiency and establishing sustainable business operations, ultimately resulting in more eco-friendly products. The standard provides guidance for companies as they set up a continuous improvement process for

environmental management. This reflects our vision at BAUER of “commitment to protecting valuable natural resources”. In addition to developing environmentally friendly products, we strive to continuously improve the energy efficiency of our premises and our production equipment. We are convinced that only sustainably managed companies will achieve and maintain global market success over the medium and long term”, affirms Dr. Bayat.

Birgitt Schäfer was appointed Environmental Management Officer in November 2020. In this position she reports to the Managing Board of BAUER KOMPRESSOREN and directly to Dr. Bayat. This appointment clearly expresses BAUER’s commitment to environmental management, an area in which the company pursues a multi-pronged strategy:

### **Environmentally friendly products**

Here, the aim is to avoid using environmentally harmful substances in our products. For example, we are increa-

sing the proportion of aluminium-free alloys while moving towards single-material sorting of product elements to simplify recycling.

### **Avoiding and reducing packaging**

We are currently working with our suppliers to increase the use of reusable packaging in the form of interchangeable containers. We will likewise continue to reduce packaging use for internal shipments and switch to reusable systems. Our shipping packaging already comprises 30% recycled material, and the film we use is likewise made from recycled material. Our parts order department has likewise largely switched to paper or cardboard packaging to replace plastic bags.

### **All sorted – waste sorting**

We’re already familiar with sorting waste in our households – but the procedure has also been integral to BAUER’s operations for years. Now our aim is to continue fine-tuning these waste sorting processes and establish them as a consistent part of our routine. Our Waste Guide



*BAUER employee and amateur bee-keeper Michael Eidenschink is delighted at the honey harvest.*

is now available, offering clear instructions on sorting waste into categories.

### Reducing CO<sub>2</sub>

We will install a total of four charging stations for electric vehicles at our Geretsried production facility in 2021. The charging stations will primarily be used by our vehicle fleet, but can also be used by employees for a small fee. We have likewise introduced the first hybrid company cars to replace conventional vehicles.

### Fostering biodiversity

This strategic goal seeks to preserve biodiversity by setting up a variety of biozones. Some of our concrete actions include the conversion of existing areas on Banater Strasse at our Geretsried location into wildlife and wildflower meadows, and the forested areas on our premises now contains woodpiles as habitats for insects and small animals, as well as six beehives.

### Energy optimization

We practise active load management to flatten consumption peaks and reduce strain on the power grid. To build on aspects of environmental management that are already well established, we aim to continue raising our employees' awareness of these concerns; our HR department will shortly introduce e-learning courses for this purpose. "Our planned environmental audit will help us to improve further and identify more areas of potential. Our objective is to avoid or eliminate waste wherever possible. I also have the aim of consistently reducing our ecological footprint in all areas, including our business operations. The watchword is: every little helps! Vague promises have



*Nitrox diving centre H<sub>2</sub>O Diving in Spain*

turned into hands-on action. But we still need everyone at our company to play their part", notes Birgitt Schäfer.

Mr. Hacker, for whom environmental management has been a central issue for many years, sees the move towards greater awareness as the fulfilment of a very personal vision. "My family and I aim to live our lives in a way that is as environmentally friendly and sustainable as possible, by avoiding waste, using green electricity and gas, reducing our meat consumption and cycling as our main means of transport to name just some of the steps we have taken. Now I want to implant some of this philosophy in the minds of each individual member of our company. We have to provide our children, our grandchildren and further generations to come with the possibility of living a positive, environmentally aware life.

BAUER takes action because the environment and a brighter future are causes that are close to our hearts. ■

## BAUER KOMPRESSOREN TOP DIVING CENTRES

Safety is a vital factor in both professional and sports diving, and its importance is soaring – primarily with respect to air quality. The classic dangers of contamination by volatile organic compounds, carbon dioxide or carbon monoxide were compounded last year when the threat of COVID-19 virus contamination was added. To provide effective health protection for customers and employees, diving centres and diving shops are increasingly investing in BAUER's state-of-the-art solutions for breathing air purification, quality measurement and monitoring. One such organization is CCR-TECDIVE, Vienna's most modern diving centre, which already holds BAUER's highest "PureAir GOLD" safety certification. The opera-



*CCR-TECDIVE, Vienna's most modern diving school, offers exemplary safety and protection with its two BAUER VERTICUS compressors with B-VIRUS FREE systems*

tor was quick to respond to the new threat and installed a brand-new B-VIRUS FREE system from BAUER KOMPRESSOREN to provide protection against COVID-19. Thanks to the new system, all breathing air filling stations are thoroughly protected against contamination with the virus. The B-VIRUS FREE is the perfect complement to the BAUER B-DETECTION PLUS system already in place at the centre; its continuous monitoring of breathing air quality safeguards end-to-end compliance with the limit values specified in the DIN EN 12021:2014 Breathing Air Standard.

Of course, complete safety also extends to the filling process; for this reason, CCR-TEC DIVE chose a TÜV-certified VERTICUS OX compressor combined with a BAUER B-BLENDING system for its nitrox needs. Nitrox is a notoriously complex gas that requires enormous care; safety-certified equipment is essential for compressing the high-oxygen, highly reactive gas.

H<sub>2</sub>O Diving had also been seeking a nitrox treatment solution and likewise

singled out the OX compressor's TÜV safety certificate as the clincher for its choice of BAUER. The diving centre in the popular Spanish region of Costa Brava offers scenic diving expeditions in the local underwater world, inhabited by moonfish, barracudas, eels and morays, and has recently begun to offer nitrox diving. The manager of the centre, SSI instructor and qualified biologist Mario Bofill, has continued to rely on the uncompromising safety and quality provided by BAUER. A new B-MEMBRANE system has been installed to complement H<sub>2</sub>O-Diving's existing breathing air compressor, a sound-proofed BAUER PE-VE model that has long been the mainstay for reliable supply of high-purity breathing air. As a long-standing satisfied customer, Bofill did not hesitate to choose BAUER for the centre's nitrox needs.

The nitrox is produced by the B-MEMBRANE unit before being compressed to 225 bar by a new OX compressor. This membrane system ensures that H<sub>2</sub>O-Diving remains independent of external oxygen provision and safeguards the reliability of its breathing air supplies. ■

## BAUER KOMPRESSOREN 60 YEARS OLD – STILL GOING STRONG

Despite her 90 years, Erika Bayer has no intention of sitting back and taking things easy. Back in 1975 she bought a second-hand BAUER diving compressor to supply breathing air for her diving



*The "retirement home" for the K14 after 46 years of loyal service*

schools. For many years Erika Bayer ran the Barracuda water sports club at Feringasee, a lake in the north-east of Munich, as well as a further diving, surfing and sailing club in Austria. The compressor faithfully served the club there until well into the 1990s. Its final home will be in the Diving Museum in Flensburg.

Erika Bayer contacted BAUER and offered to donate her legendary compressor – still in full working order – to the museum. We were only too pleased to help her fulfil her aim! Ms Bayer and her daughter accompanied the compressor to hand it over in person before it was inspected, serviced and prepared for exhibition. For over 30 years it had waited patiently outdoors – naturally well protected – for its next role to come along. After an oil change and replace-



*Factory tour during the handover*

ment of the electric connection coupling, the compressor awakened from its 30-plus years of slumber straight away! The customer service workshop rang with the sound – audible confirmation of BAUER’s legendary reputation.

After a special paint finish, the compressor will be presented to the museum. During her visit Erika Bayer was treated

to a tour of the premises. The latest generations of BAUER’s mobile compressors, with their excellent quality and sleek design, fired her enthusiasm all over again. And at its new home in the Diving Museum, her K14 now continues to bear witness to the legendary reliability and durability of BAUER KOMPRESSOREN. ■

## BAUER KOMPRESSOREN SPARE PARTS SERVICE

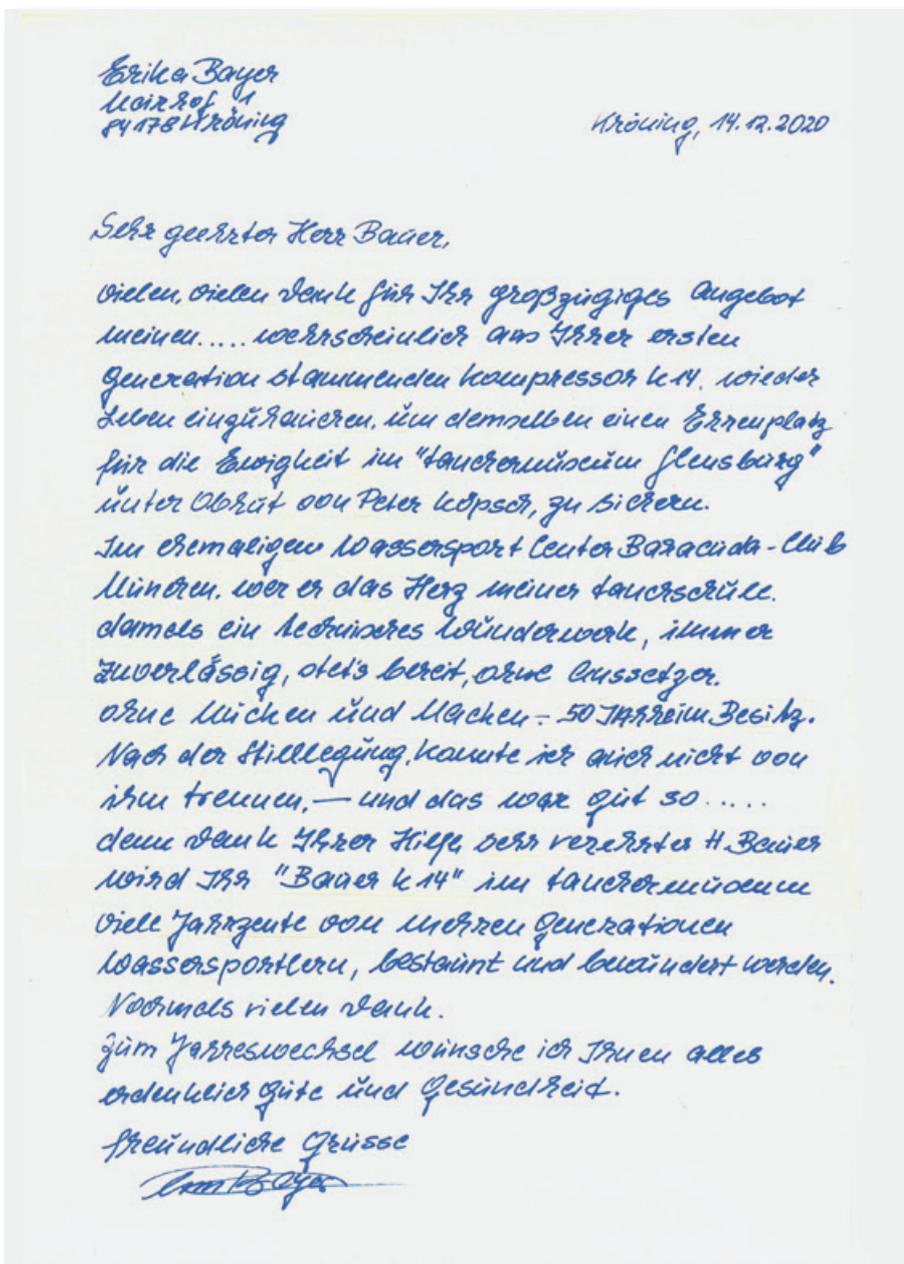
The reorganization of the spare parts service at BAUER’s second Geretsried plant has enabled important goals to be achieved, including

- ergonomic workplace design with natural daylight,
- efficient parts warehousing to ensure order picking is rapid and fault-free,
- switch to recyclable packaging.

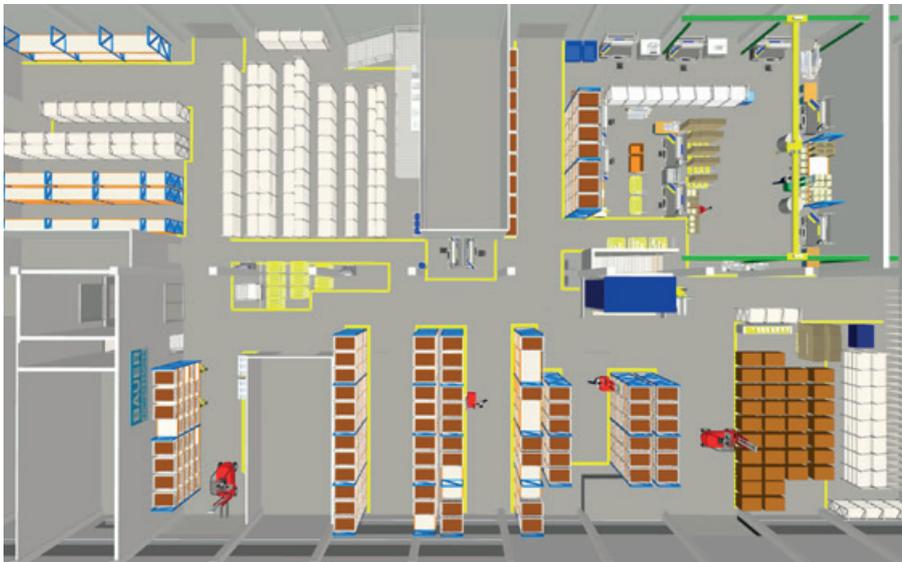
BAUER combined its in-house specialist expertise with the external know-how of logistics specialists GLX to deliver an optimum future-facing solution in a rapid and constructive process. “In-depth brainstorming with the project team was followed by the development of a process-oriented layout that incorporated all our needs and requests”, explains project lead Andrea Hübbers.

A particular challenge of the project was the need to complete the reorganization in just three months while business continued as usual. “There were so many things that had to be done in exactly the right order. Where to place power and IT connections, where should the compressed air go, how should we design the lighting, when is cleaning or refurbishment required for flooring, and for which areas?” recalls project lead Michael Schmid.

The office containers that had been in use were converted to improve the indoor conditions, with extra windows facing the shipping area to boost natural light. The move to the sleek new air-conditioned spaces was a fast process, and now the department is optimally located



The letter of thanks for the K14 compressor from the Barracuda Club



The spare parts service gets a makeover.



Fast access to all parts and components



The new pallet racking area

close to the shipping department. Relocation of BAUER ACADEMY's technical training services to the former offices is also under way. It has been arranged to minimize impact on the customers. The biggest sub-project was moving the warehouses from the basement to the

ground floor. The whole process was completed in a single extended weekend, and by the Sunday evening the last pallet of a seemingly end-less procession had finally found its new home on a different floor – a total of around 5,000 individual products and many

items of equipment. “Everyone rolled up their sleeves and helped to move things to their new places. Our only fear was that the lift might break down, but fortunately it soldiered on!”, says Andrea Hübbers in relief.

On the following Monday morning at 6.15 am sharp, the spare parts service resumed operations and began to supply our global customers with parts and components once again. “As part of the reorganization process, we replaced our old diesel forklift with a modern, eco-friendly electric vehicle and carried out various essential maintenance and repair works. Now all we need to do is update the indoor and outdoor signage, and we’re done!” nods Michael Schmid. Our congratulations go to the whole project team, and particularly to project leads Andrea Hübbers and Michael Schmid for their successful completion of the project! ■

## PUBLISHING CREDITS

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