

EDITORIAL



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

In a world of ever-increasing change, constant innovation has become a key precondition for the success of our company. As well as driving modular fuelling station concepts in the field of environmentally friendly mobility, the topics we are primarily working on are Industry 4.0 and smart connectivity between systems in IoT. We demonstrated our commitment to innovation and sustainability at this year's Hannover Messe, the environment-focused tradeshow. The BAUER stand highlighted the value of the environment and global resources; instead of plastic and chipboard, it was built from reusable container modules and natural turf. The unique design was strikingly different from the sea of near-identical stands around it, making a powerful statement about our focus for the future, which has always shaped our entrepreneurial activities and will continue to do so.

Heinz Bauer
Dr. Monika Bayat
Philipp Bayat

BAUER KOMPRESSOREN PHILIPP BAYAT ACCOMPANIES CHANCELLOR TO JAPAN



German Chancellor Angela Merkel, Philipp Bayat, Japan's Prime Minister Shinzō Abe

Philipp Bayat, Chairman of the Executive Board of BAUER GROUP, accompanied German chancellor Angela Merkel on her state visit to Japan on 4 and 5 February 2019. The twelve high-calibre members of the business delegation, the chancellor herself and the Japanese Prime Minister Shinzō Abe held in-depth discussions about expansion of eco-friendly forms of energy such as hydrogen.

The visit had been planned to mark the free trade agreement between Japan and the European Union (JEFTA), which came into effect on 1 February 2019. Together, Japan and the EU account for 40 per cent of world trade. The spirit of the agreement also presents the intention of

establishing collaborations between large-scale and SME companies from the EU and Japan, with the aim of forging alliances that are better able to withstand competition from global rivals. It deals with topics including "big data", Industry 4.0 – the Fourth Industrial Revolution – and climate policy; a constituent of JEFTA is the goal of meeting the targets of the Paris Agreement.

Given this, talks focused on expansion of climate-friendly renewable energy sources for public and private transport and for general energy supply – a field in which Japan is among the most ambitious economies. A BAUER subsidiary has been in operation in Japan for forty years;

the company is the only international high-pressure compressor manufacturer to hold the necessary certification for Japanese markets. The BAUER production plant in Kitakami manufactures compressors for local markets as well as converting imported systems. The plant is currently undergoing its third phase of expansion.

BAUER is a global player in the production of biogas and natural gas fuels, for instance in establishing a network of natural gas fuelling stations in Abu Dhabi, and will enter the field of hydrogen compression technologies in the future. Given this company's breadth of expertise, Philipp Bayat was therefore a natural discussion partner for Angela Merkel and the business delegation. The management team of the BAUER GROUP hopes that the free trade agreement with Japan will further business relations, and looks forward to contributing BAUER knowledge and technology to the fulfilment of targets set forth in the Paris Agreement.

The BAUER GROUP, established in Munich in 1946, is represented around the world with 40 subsidiaries and sales offices. With 1,200 employees, it generates global sales of approx. EUR 300 m. With exports accounting for 90 per cent of sales, BAUER is the global market leader in high- and medium-pressure compressors. Its product portfolio spans breathing air compressors; gas injection technology (GIT) for plastic injection moulding; natural gas, biogas and H₂ fuelling stations; and compressor systems for all industrial applications and segments. After ratification of the provisions of the Paris Agreement, fuelling stations for natural gas, biogas and hydrogen are expected to boom, particularly in industrialised countries. ■



The new Haux hyperbaric chamber has more than doubled the centre's treatment capacity since 2011.

BAUER KOMPRESSOREN B-DETECTION NEW IN EGYPT

When divers suffer from decompression sickness, the speed with which they can be treated in a hyperbaric recompression chamber can make all the difference, potentially ruling out any permanent side-effects or even being a matter of life or death: In Sinai, Dr. Adel Taher and his team at the Sharm El Sheikh HBO Center have supplied this vital first aid for 25 years.

For the past quarter-century, four BAUER breathing air compressors have delivered a reliable supply of air for the two hyperbaric chambers at the centre. During this time, countless divers have been successfully treated. To mark this achievement, the centre decided to hold a four-day event focusing on diving and hyperbaric medicine. An array of high-calibre speakers, including representati-

ves from DAN Europe, were invited to give talks on the latest research results concerning avoidance and treatment of decompression accidents. BAUER KOMPRESSOREN was also in attendance and took the opportunity to present its new gas measurement system, B-DETECTION PLUS. This system provides complete and reliable end-to-end monitoring of compliance with the strict specifications in the DIN EN 12021:2014 Breathing Air Standard, thus ensuring an unprecedented new level of breathing air safety.

Use of the system is a prerequisite for diving centres seeking certification under the recently introduced BAUER



Delighted at the success of the event: co-organiser Dr Anke Fabian.

PureAir Gold Standard, which was also introduced at the event.

On the second day numerous visitors – the majority of them diving guides – seized the chance to take a tour of the centre and find out more about how the hyperbaric chamber works. Workshops on cardiopulmonary resuscitation and risk management were also popular. A diving day in Ras Mohammed Marine National Park offered the opportunity for attendees to put their new knowledge into practice while exploring the spectacular underwater world. ■

BAUER KOMPRESSOREN **A-PARTNER MEETING**

From as far afield as Denmark, the Netherlands, Greece and even the Maldives, certified BAUER Partners from all over the world travelled to Munich for the regular A Partners' Meeting, now an established tradition.

The meeting focused on the brand-new B-DETECTION PLUS gas measurement system which recently debuted at the boot trade show in Germany. Attendees were treated to a full-day in-depth

training course that enabled them to familiarise themselves with every aspect of the new device and its many benefits. The event also provided information on the new PureAir Gold Standard, which provides a previously unachieved level of safety and security for breathing air supplies when combined with the stationary B-DETECTION PLUS gas measurement system. BAUER's aim is to maximise the number of global certifications under the new standard, to ensure that divers at as many dive centres as possible can access breathing air that complies with valid standards. But Bavaria is more than a source of highly pure breathing air; it's also home to world-class beers that are brewed to ancient purity laws. BAUER's A Partners experienced this for themselves on a guided tour of the traditional Ayinger brewery, followed by a beer tasting and hearty Bavarian food. ■



Die neue leistungsstarke PE-TB-Anlagenreihe gibt maximale Mobilität.

which BAUER KOMPRESSOREN will premiere at the 2019 boot trade show.

The "T" and "B" in the name stand for the German words for "portable" and "petrol" – summing up the benefits of the PE 200 TB, which is powered by a rugged Honda petrol motor. Complete independence from mains power, for operation anywhere in the world. The PE 200 TB can be ordered after the trade show. Price to be announced.

BAUER KOMPRESSOREN **NEW PRODUCTS**

Mobile system with petrol drive – The new PE 200 TB

Now divers can look forward to even greater freedom with the new POSEIDON EDITION PE 200 TB compressor,

B-DETECTION PLUS m

"m" is for mobile: BAUER's state-of-the-art stationary breathing air measurement system is now joined by a convenient, compact carry case version for mobile use. The new mobile system allows all users to reliably measure breathing air wherever and whenever they want.

B-DETECTION PLUS m offers an array of measurement options. The gas sampling unit supplied as standard is used to measure air quality in breathing air cylinders. Optionally, measurement can also be performed directly at the compressor. As a further option, intake air can be measured before it enters the compressor. The optional rechargeable battery offers complete freedom, allowing the system to be used anywhere; no need for external mains power when measuring the quality of breathing air.



BAUER partners from all over the world met up in Munich at the now-traditional A Partners' Meeting, took part in training courses and exchanged information and experienced.



B-DETECTION PLUS m – the mobile solution for reliable breathing air measurement

The battery capacity covers a minimum of 5 hours of measurement. The long-life lithium iron polymer battery was chosen for its exceptionally high cycle count.

The transport case offers IP65-rated protection against dust and water jet ingress and withstands harsh environmental conditions. ■

BAUER KOMPRESSOREN BAUER AT BOOT

BAUER has launched a broadly based initiative promoting safe, pure breathing air. The aim of the initiative is to offer a simple way of making breathing air safe with the new BAUER PureAir Gold certification, B-DETECTION PLUS and an information video for divers on the importance of pure breathing air.

At the 2019 boot Düsseldorf exhibition, BAUER's stand in Dive Hall 3 was the most eye-catching display by far. Designed in striking comic style, the stand focused on the topic of air quality and chose to tell it in a story: a diver who has breathed contaminated air is saved from the depths by BAUER "PureAirMan", a superhero fighting for pure air. In terms

of products, BAUER presented B-DETECTION PLUS m, its new measurement device, with the "m" naturally standing for "mobile". BAUER has succeeded in designing a convenient, compact carry case version of its state-of-the-art stationary breathing air measurement system. The new mobile system allows all users to reliably measure breathing air wherever and whenever they want.

In a further world premiere, the boot Dive Center was the first centre in the world to receive PureAir Gold certification. The certificate was ceremoniously presented on the stage. The core criterion of the new Gold Standard is end-to-end air monitoring by B-DETECTION PLUS. As in previous years, BAUER KOMPRESSOREN was again providing the air supply for the boot Dive Center in the Dive Hall. Compliance with limit values was one hundred per cent ensured by the new gas measurement system, B-DETECTION PLUS.

Another brand-new product making its debut at the 2019 boot Düsseldorf was the PE 200 TB compressor from the



The boot Dive Center Divcenter was the first dive centre in the world to receive the new BAUER PureAir Gold Standard for safe breathing air.

POSEIDON EDITION line, providing divers with mobility and freedom. The "T" and "B" in the name stand for the German words for "portable" and "petrol" – summing up the benefits of the PE 200 TB, which is powered by a rugged Honda petrol motor. Complete independence from mains power, for operation anywhere in the world.

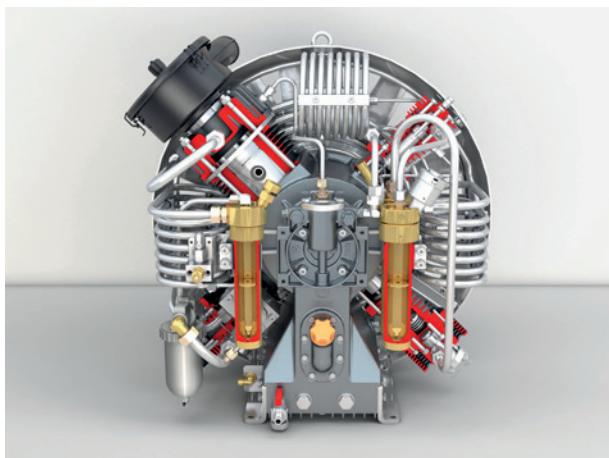
As every year, Thursday evening at boot Düsseldorf was reserved for the Dive Awards. Everyone who is anyone in the diving scene always saves this date – the annual highlight of the exhibition. This year, BAUER's sponsorship commit-



Featuring a bold, eye-catching coming style, the BAUER stand at the trade show presented the benefits of breathing air quality.

DID YOU KNOW?

How it works - Air compression in a 5-stage compressor block



You may not be aware that when a compressor block compresses air or gas to a pressure of 500 bar, the pressure produced is 500 times that of normal ambient air. Such high levels of compression involve complex engineering processes and demand advanced technological expertise. The friction and compression in the process of gas compression cause enormous amounts of heat to form. Because of this, compression cannot take place in a single stage but must be divided into a series of stages. While three stages are enough for a 200-bar compressor, compression to 500 bar requires five stages.

First air is drawn into the compressor through the intake air filter housing. This contains a paper filter that removes coarse and fine particles. From there, the air or gas passes through the inlet valve and into the first stage cylinder chamber. The piston compresses the air from ambient pressure to approx. 4 bar. The air then passes through the outlet valve into the intercooler,

where it is cooled again. In air-cooled compressor blocks like the 18.1, this task is performed by the large fan wheel at the rear of the compressor. When the air is thus compressed and subsequently cooled, any superfluous oil content (from the compressor lubrication system) and water content condense out. They are extracted by an inter-stage cyclone separator and collected in a condensate vessel.

The compressed air now passes through the next five stages, which repeat the compression process. The division of the process into five stages with inter-stage cooling ensures that temperatures in the block never exceed critical levels. In an emergency, safety valves on the inter-stage separators and a final pressure safety valve automatically open to release the pressure build-up.

Because the final compressor stage involves enormous pressure and high temperatures, additional pressure lubrication is required. This is the job of the low-pressure oil pump, which pumps air into the fifth-stage cylinder from above. The oil has the function of simultaneously cooling and lubricating. After the fifth and final stage, an aftercooler reduces the temperature before the air passes from the compressor block into the external final separator.

Heinz Bauer

Heinz Bauer



Green turf replaced plastic, and chipboard panels were abandoned in favour of reusable containers. Visitors were unanimous in their praise of the sustainable and innovative design of BAUER's stand at this year's ComVac trade show.

ment focused on the concept of pure breathing air –and more precisely, the new PureAir Gold certification. ■

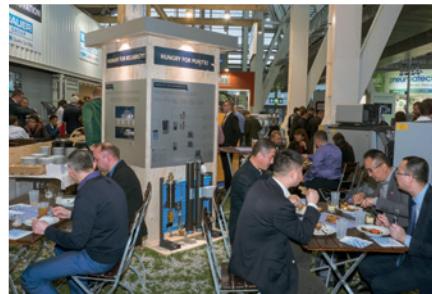
BAUER KOMPRESSOREN **BAUER AT HANNOVER MESSE**

There was a clear focus on sustainability at BAUER's powerfully designed

stand at the 2019 Hannover Messe trade show. Surprises were in store this year for visitors to the Hannover Messe seeking out the BAUER and ROTORCOMP stand in Hall 26. The companies had introduced an all-new concept for their trade show presence, focusing on sustainability and environmental protection in the form of waste avoidance. The stand design team had chosen to replace the usual single-use partitions with shipping containers. These reusable structures were imaginatively used to create meeting-spaces in traditional Bavarian style. The displays of



Christian Ziganek, Heinz Bauer, Philipp Bayat, Stefan Hacker, Dr. Monika Bayat, Klaus Schröder (l. to r.)



Full house! The now traditional Bavarian Evening once again attracted numerous international visitors.

new products featured a base of compostable natural turf instead of the conventional choice of plastic flooring.

The main focus of attention by far was the new GIB 26 SP compressor, which was making its public debut. The system offers an advanced piston and air-end combination that delivers high F.A.D. volumes in a compact package. In addition, the new stationary PE VE attracted interest for its exceptionally economical operation. The “Topic Tower” gave interested visitors the chance to find out more about BAUER’s wide range of air and gas purification solutions, sophisticated control options, parts and service quality and, in the spotlight, the new state-of-the-art B-DETECTION PLUS gas measurement system. BAUER and ROTORCOMP received glowing praise from all the visitors to the stand for their ecologically aware approach and distinctive design that set their stand apart from the others at the trade show.

This year the now-traditional Bavarian Evening took place on Tuesday. Top DJ Heini, usually found in action at Munich’s trendy Schlingel nightclub, had travelled up especially for the event and soon created a party atmosphere. Visitors had a great time snapping selfies at the photo booth with its huge selection of fun props and costumes. ■

UNICCOMP ROBOTICS

Heinz Bauer and Philipp Bayat are convinced that “UNICCOMP must transform the vision of digitalised, automated and versatile production operations into reality”.



Max Schöpper programs the robot for the CNC machine.

Over the past three years or so, UNICCOMP has focused intensively on the subject of automation in production processes, seeking to interpret the dynamic developments on the market and collect experience that will enable the company to develop a smart tailored solution for small batch sizes.

Eric Ries, author of 'The Lean Start-up', wrote "Think big; start small" – and this watchword was adopted by Roland Beckert for the implementation of robotics at UNICCOMP. In Beckert's view, "a smart, affordable solution and the experienced team were my key factors for success."

UNICCOMP established contact with robotics manufacturer DOOSAN, a small-scale family-run contract manufacturer, at a tradeshow. It was followed up by a valuable reference visit, where UNICCOMP's representatives were introduced to DOOSAN's pragmatic approach to integrating cutting-edge robotics technology. In their view, it was highly promising and could easily be applied at UNICCOMP. Dr Bayat approved the project and praised the enthusiastic, highly motivated team at UNICCOMP.

The project turnaround time from initial contact to realisation was a mere three months. The pilot phase drew up the product program for the automation

process and redefined and adjusted machinery scheduling. The CNC machine was upgraded with new safety features; the robot used in this capacity is already designed as a human-machine robot and equipped with advanced highly sensitive sensors to meet the essential safety requirements.

"Implementation of the new technology involves straightforward programming of machines and robots, but also requires us to critically review our previous production methods and redesign our clamping systems to improve the safety of robot-led production. Setting up the new technology was really great", recalls Max Schöpper. Before production was re-launched, a safety guideline was issued and employees received instructions and awareness training in extra hazard assessment measures. The first workstation at UNICCOMP to be designed as a human-robot collaboration was ready to go!

The solution developed for the new robot was also able to fulfil Heinz Bauer's wish for an open workstation without enclosure.

"The introduction of the new robot workstation maximises efficiency by allowing multiple machine operation; the automated line can continue production uninterrupted while the other machine is being retooled", explains Robert Koch.

"We have scheduled over 2,000 robot-based production hours for the machine in 2019, which are already in progress. We aimed for maximum flexibility during implementation of the project to enable the robot to be used at other selected workstations as well", adds Roland Beckert.

The human factor was also an important consideration for the project; the

robot relieves human employees of work stress by taking over repetitive tasks. Initial concerns among the workforce were put to rest by this important realisation, which will be extremely helpful when the next steps in automation are taken. ■

BAUER KOMPRESSOREN DIGITALISATION

The BAUER GROUP has already launched a range of digitalisation projects in 2019. We find out more in an interview with Ronald Michl, CIO and Digitalisation Officer.

The digitalisation projects under way at the BAUER GROUP are taking the company into the next decade. Could you give us an overview of what's going on?

"We've launched five major areas of digitalisation:

1. We aim to implement digital solutions in production operations at UNICCOMP and BAUER, under the leadership of UNICCOMP. They include leaner production processes using simulations and digital twins as well as an array of automation solutions. For ex-



Ronald Michl, CIO & Digitalisation Officer

Diagnosis

Analysis

Design

Development

GoLive

ample, all information for employees at digital assembly line workstations will be supplied in paperless form in future. 2. Our ERP release transition will migrate our core IT system from the current Axapta AX 4.0 to Microsoft Dynamics D365. This is definitely the biggest project currently in progress in the BAUER GROUP. We have worked with our implementation partner, HSO, to choose an extremely pragmatic transition method. It comprises a prototype solution directly based on the Dynamics standard and will span a series of project phases.

3. Our new Microsoft CRM system will replace Sales Force and integrate our global customer relations and quotation system into our ERP environment. The new CPQ quotation configurator is a high-performance and highly integrated configuration system that reflects contemporary standards.

4. To optimise our customer support we will migrate to Field Service, an integrated solution that is also sourced from Microsoft.

5. eCommerce is a key theme for BAUER. Our aim is to provide our sales partners with a modern platform that is deeply embedded in our CRM and ERP system. This will make order processing easier for our customers, and smooth the way for our own automated processes.

They sound like exciting challenges! What do the individual project phases actually involve?

In the first four months of 2019 we largely completed the first two phases of diagnosis and analysis. This involved

quite an abstract approach to diagnosis in order to understand our process map and our system environment. During the analysis phase, we examined the main and sub-processes with our process key users and key users, with the aim of establishing the basis for the next phase and building the prototype of the new system.

The design phase will work on the prototype system, honing the future processes and workflows to reflect our requirements as closely as possible within the system standards. Process optimisation, and the significant boost to productivity that it involves, is one of the foremost objectives of the entire project. Our aim for the future is to introduce paperless working and seamless connectivity wherever possible, maximising efficiency in the interests of our customers.

In the final deployment phase, the actual system will be set up and our data will be migrated in a series of quality loops. This phase will also include in-depth training for end-users close to the go-live event, to ensure they will easily master the transition to the new system.

Can you explain about process key users and key users?

A cross-company team of around 65 members of the BAUER GROUP work within our processes to develop the systems. This spreads the tasks involved among as many stakeholders as possible. Process key users are multi-disciplinary leaders in the team, and are supported by functional key users. Working with HR, the key users will

primarily be responsible for training the users.

Significant investments have been made in hardware as well as software. What have they involved?

Even today, our IT infrastructure has already advanced from what it was like six months ago. For example, we invested in new hardware that mirrors around 60 virtual servers – 30 as ERP and 30 as non-ERP servers. Our Internet bandwidth between our locations has also been boosted and distribution components have undergone modernisation. These investments have brought our IT up to state-of-the-art level.

When is the go-live?

We aim to migrate to the new system in July 2020. In the time until then, we have to make sure our systems, data and users are ready for the new step. ■

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