

EDITORIAL



*Philipp Bayat, Dr. Monika Bayat, Heinz Bauer
(from left to right)*

The world is experiencing some changes. Industries and markets once considered stable and reliable are now undergoing transformation. At BAUER, we are putting all our efforts into developing competitive products that reflect the needs of the market and reinforce our global brand presence. We rely on the extensive pipeline of our upcoming projects. Many customers are postponing investment plans, however, customer retention and loyalty remain strong, thanks to the hallmark reliability and quality of the products and services we offer. We are working together on being fit for the future, and are optimistic that like in the past, we will tackle this economic downturn successfully – and even emerge stronger.

Heinz Bauer
Dr. Monika Bayat
Philipp Bayat

BAUER COMPRESSORS USA NICKEL MINING



The refinery, 11 kilometres south of the port of Toamasina

One of the world's largest nickel and cobalt mining areas is located near Toamasina in the north-east of the island of Madagascar. The ore reserves in the region are estimated at 125 million tonnes.

After extraction, the ore is transported along a 220-km pipeline to the refinery, where it undergoes several stages of hydrometallurgical processing before ending up as the finished product – ingots of nickel and cobalt, metals that are essential to industrial production. The refining process involves the use of autoclaves. Compressed nitrogen produced by BAUER compressor units serves as a flushing gas for an array

of pipelines. The nitrogen is supplied using membrane technology and compressed by four high-powered BAUER GIB 26.8-160 industrial compressors. The nitrogen enters the compressors at an intake pressure of 10 bar and is then



The plant startup team

compressed to the system's operating pressure of 59 bar. Each compressor supplies the autoclaves with 1,224 m³ of compressed nitrogen per hour.

Madagascar's high levels of humidity and high temperatures generally present a major challenge for the machinery in use there; however, conditions on the tropical island are no problem for BAUER's ultra-rugged compressor units, which are famous for their long service life. ■

BAUER KOMPRESSOREN 70 YEARS

History of BAUER, Part III

Hans Bauer was quick to recognise the importance of his company's presence on global markets as a factor to drive growth.

With this in mind, from the mid-1970s he resolutely embarked on a targeted course of expansion. The foundation of BAUER COMPRESSORS in Norfolk, Virginia, USA, marked the start of the company's entry into international markets. The location of the new company, near the country's biggest



1978: The new BAUER KOMPRESSOREN plant in Drygalski Allee, München

naval base on the Atlantic coast, had been strategically chosen as a gateway that would open up the whole continent.

Despite his advancing age, Hans Bauer headed the company's new US operations. During this time, Mr. von Dobeneck proved success in sales here in Germany thus he emerged as a suitable candidate to manage the company in the US and took over the responsibility for North America. Numerous regional offices were later added as the operations progressed. The associated manufacturing plant used compressor blocks from BAUER in Munich for producing customised systems tailored to local market needs.

1978 saw the construction of the new premises at Drygalski Allee in Munich, laying the foundations for BAUER's global expansion in the coming decades.

This new plant incorporated state-of-the-art technology, and was the first to use CNC machining systems in pre-production processes. It marked the company's transformation from workshop to advanced production facility. For the first time, the plant exclusively produced high and medium-pressure compressor systems.

In 1980 BAUER's former location on Wolfratshauer Strasse in Munich became the headquarters of another new subsidiary, ROTORCOMP, a brand that would later become synonymous with the production of screw compressors and screw modules. The unique selling point was the 'rolling profile' of the screws – an in-house development – which was designed along bionic principles.

In 1982, a large order from the Middle East kept BAUER's entire production busy, and we faced a logistical challenge for the first time. A total of 15 high-pressure compressor systems with reducing station and 164 three-axle Mercedes vehicles complete with large-size high-pressure storage units had to be manufactured in under nine months. Completing the order proved to be a real tour de force for the company.

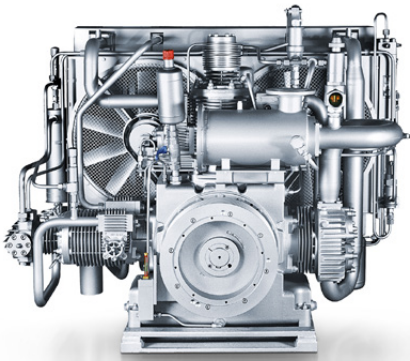
At that time of the order, BAUER's



BAUER COMPRESSORS in Norfolk, Virginia



1980s: Heinz Bauer with a service vehicle



In the 80s, the K25 block was developed to market-readiness in record time.

product range did not contain any compressor block models that were capable of delivering the required volume of compressed air; the K25 blocks that were planned for use in the systems were still only an idea in the research and development department. However, they were perfected as market-ready products within a record-breaking time of only six months.

In pursuit of its expansion plans, BAUER founded another subsidiary, in Europe: BAUER COMPRESSEURS in the French city of Aix-les Bains. BAUER France focused on the booming plastics market and successfully developed systems for precise dosage in gas injection technology. Offering exceptional precision, they were unique throughout the market.

In the late 1980s BAUER raised the bar of quality in the field of compressors with the ground-breaking new VERTICUS. “Why not locate the drive system underneath the block?” mused the engineers. Unlike traditional systems, where the block is mounted next to the drive on a foundation plate, the VERTICUS featured a compact vertical design, with filling devices that could be operated while standing and control devices ideally positioned at eye level. A leap in ergonomics that BAUER’s

competitors would later strive to copy. A brilliant concept. The electric drive was mounted on a movable motor rocker, maintaining drive belt tension by its own weight. Sophisticated sound-proofing inside the silent housing and special cladding ensured whisper-quiet operation. The original VERTICUS I, launched in 1987 and now in its fifth improved generation, is still an enormous sales success. *To be continued.* ■

BAUER COMPRESSORS USA TOWN HALL MEETING

At this year’s Fourth of July Town Hall Meeting, BAUER USA had the honour of welcoming two very special guests – Celina and Emanuel Bayat, who had accompanied Philipp Bayat on his visit to the USA.

The Town Hall Meetings held by BAUER USA are monthly meetings where our staff have the chance to keep up to date with our latest achievements, and with our company’s progress and direction of our strategy. This time, the meeting opened with a buffet lunch and a speech by the company’s President,



Celina Bayat



Emanuel Bayat

Tony Bayat. After achieving enormous growth of around 60 per cent, BAUER USA is now planning to make the most of the current market situation to be ready for the future. The company will boost its productivity as part of a restructuring and consolidation process. It will focus on the production of large-scale compressor systems using modern paced assembly methods. BAUER invested \$20 million in a new, up-to-date production facility two years ago with an objective of continuing to expand its leadership status on the US market.



Staff assembled for the Town Hall Meeting

The Managing Directors of the BAUER GROUP, support the 'Path Up' program; Philipp Bayat, in his speech, reinforced the support from BAUER COMP Holding for BAUER USA in terms of its corporate strategy, which is firmly founded on three strong pillars: ongoing investment in technologies, product innovations, and production technology.

Representatives of the next generation were also invited to speak. Making his debut on the stage, Emanuel presented some of his ideas about connecting our next-generation compressors with the Internet of Things and our mobile devices. Celina's speech focused on the significance of BAUER's outstanding global image, rooted in quality and reliability of our products.

The young speakers' visit was concluded with a tour of BAUER USA plant, which these up-and-coming entrepreneurs described as "one of the most modern state-of-the-art facilities we have ever seen". ■

BAUER KOMPRESSOREN NEW TRAINEE INTAKE

1st September saw a total of eight new trainees embarking on their training programmes in the BAUER GROUP. At UNICCOMP, another six intake began their courses as machinists and industrial mechanics.

BAUER KOMPRESSOREN is also training two more young people in warehouse logistics and industrial mechanics. On their first day, all the trainees were invited to a Welcome Day at BAUER



BAUER GROUP's new trainees and their trainers

ACADEMY's training centre. They were warmly welcomed by their trainers and by the HR Development department. In the morning, the new intake were introduced to BAUER GROUP and its product range.

The information covered details on the course of their training, as well as comprehensive in-depth introduction to occupational health and safety. To conclude the morning's schedule, the trainees were taken on a tour of Plant II and had the chance to inspect their future workplaces in the training workshop and customer service warehouse.

After lunch at the UNICCOMP cafeteria, the group returned to the training centre where a team game was planned for the afternoon. The game – to design a flying object – required plenty of tinkering and creativity. This gave all of them a chance to get to know each other and have fun in the process. At the end of the day, the flight capabilities of their inventions were put to the test by being thrown off the upper floor. The aim was to land the 'passenger' – a raw egg – safe and undamaged, which most of the teams successfully achieved.

The concluding feedback session was very positive. We wish all our apprentices and trainees a successful

start to their courses, and once again welcome them warmly to the BAUER Family! ■

BAUER KOMPRESSOREN CAD/CAM IN TRAINING

When a CAM (computer-aided manufacturing) system was introduced at UNICCOMP, new skills requirements were drawn up for our machinists; vocational schools also expanded their curricula thus it was time for us to modernise the company's training programmes as well.

'Solid Works', a 3D CAD (computer-aided design) system, was introduced in trainee programmes in early 2009, in line with the vocational school training. Based on this, in 2015 investments were made in 'Solid CAM', a complementary software module that uses 3D drawings to generate a CNC (computer numeric control) program and 'translates' the information from the drawings into machine-readable code.

The system already includes two CNC milling machines, with a CNC

lathe to follow in 2017. Our trainees will thus be prepared for UNICCOMP's skills requirements during their training.

"As well as courses in basic pneumatics and CNC technology, we can now offer professional tuition in basic CAD/CAM", says Stefan Arnold, BAUER ACADEMY Training Director. ■

BAUER COMPRESSORS India KEEPING FIT

Masters, Smashers, Acers and Rockets – these swanky names are proudly thought out by the badminton teams at BAUER KOMPRESSOREN India. The BAUER Badminton League (BBL) was initiated by enthusiastic members of BAUER India, and quickly proved to be an El Dorado of nail-biting singles and doubles matches.

The team that finished a round with the most points went on to play in the next round. In conjunction with 70 Years of BAUER, each player received a T-shirt made specially for this occasion. The event was announced in April and the matches were held on 14 May 2016, to allow the teams plenty of time to prepare for the games and develop their strategies. The finals took place at a local club. The „Masters“ team, headed by Mayur Manerikar won.

The badminton event brought every-



The BAUER Badminton League team

DID YOU KNOW?

The new Pressure Equipment Directive 2014/68/EU

The new Pressure Equipment Directive (PED) 2014/68/EU sets forth mandatory requirements for pressure equipment supplied and placed on the market within the European Economic Area. It applies to all manufacturers, sellers and importers of pressure equipment and components as well as to third-country manufacturers. All new provisions must have been implemented by 19 July 2016 at the latest. The new Directive renders the preceding Directive 97/23/EC invalid.

The Pressure Equipment Directive generally applies to all vessels with a maximum permissible pressure exceeding 0.5 bar. These include pressure vessels, piping systems, fittings and safety-related parts and components, such as safety valves.

At BAUER, an important aspect of the new Directive is the correct new hazard classifications for process media, i.e. all gases and liquids. Media are classified into fluid groups; fluid group 1 comprises hazardous media, and fluid group 2 all other media. While classification was previously based on seven different characteristics, 17 are now applied to the media.

In addition, the requirement to draw up risk analyses has been added to the new terminology, module designations and content associated with the new PED. This replaces the previous hazard analyses. The preceding Pressure Equipment Directive considered the potential hazards involved in the pressure vessel; now a risk analysis must be produced, which examines not only the hazard potential, but also the probability of occurrence of the risk.

A further new aspect is the length of accountability for all those placing pressure vessels on the market in Europe, i.e. manufacturers, importers, retailers and authorised representatives of third-country manufacturers. With immediate effect, the competent market surveillance authority must now be furnished with details of the purchasers and sellers of specific items of pressure equipment covering a ten-year period.

Heinz Bauer

one together more closely, and proved to be an enjoyable way to boost the personal motivation of individual members. BAUER India will continue to hold the BBL and similar events in future. ■

BAUER KOMPRESSOREN China BOSCH AND BAUER

The formula for strong partners for eco-friendly mobility in China.

One of the most urgent problems facing China today is air pollution, which has increased dramatically as traffic volumes have exploded. Surging levels of industrial production have caused the volumes of goods transported by road to soar; in addition, many members of today's growing middle classes can now afford to own and run a car. The dimensions of this pollution problem become clear when we take a look at the numbers of cars sold – at almost 25 million, compared to 3.2 million in car-friendly Germany. In addition, China is vast, and travel distances within the country are



Supplying gas to an engine test rig

huge; its network of motorways totals 120,000 kilometres.

The Chinese government has recognised the potential offered by natural gas, an environmentally friendly and low-pollutant fuel, in reducing traffic-related air pollution. Compared with their petrol-driven counterparts, natural gas engines emit 25 per cent less carbon dioxide, 60 per cent less carbon monoxide, and zero particulate. Bosch is a global specialist in fuel injection systems and engine components. The company has developed a test rig for analysing fuel injection systems, with two BAUER CTA 23.2 compressors that provide the highly compressed natural gas required for the test procedures. These high-performance water-cooled systems can compress 140 cubic metres

of natural gas per hour; the gas is supplied from the local natural gas network at a pressure of 0.8 bar, and is compressed to the necessary final pressure of 200 bar by the compressor units. The gas is then dried in a multi-stage process and stored in high-pressure storage tanks for access when required.

Both the BAUER systems have already thoroughly proved their reliability, delivering over 2000 hours of smooth, trouble-free operation so far. This stellar 'made in Germany' quality also convinced FAW Injection Systems Manufacturing, a Chinese state-owned company, which immediately decided to order two systems of the same type. ■

BAUER KOMPRESSOREN Russia YOUTH DIVING CAMP

Sponsorship of sports activities for young people has a long tradition in Russia – but is rarely associated with diving. While the vast country has little access to warm seas, it has many inland lakes offering opportunities for diving.

One of these lakes near Moscow was chosen for a youth diving camp organised in the last week of August by the Moscow branch of the Russian Federation of Sports Divers. Over 200 children from all over Russia had the chance to explore the underwater world in intro dives and could rely on pure breathing air in the process, thanks to BAUER. The air was provided by a mobile



BOSCH branch at Wuxi, China



A group portrait marks the end of an exciting week of diving



A JUNIOR II provided pure breathing air

JUNIOR II diving compressor supplied to the Federation free of charge by BAUER KOMPRESSOREN Russia.

The Federation's President, Yana Yaroshenko, thanked BAUER warmly for their support of this important youth project. ■

UNICCOMP NEW LEAN METHOD

Success has already been achieved by optimising resource utilisation in production and logistics processes, which has contributed to productivity increases and reductions in through time. Lean methods are tools with proven effectiveness in production.

“The next, and highly promising, step

at UNICCOMP will be to combine the integrated approach of quick response manufacturing – or QRM – with well-known lean methods”, explains Roland Beckert, Plant Director at UCC.

A combination of these methods can provide targeted solutions to the effective handling of short-notice customer enquiries. The answers lie in achieving high levels of flexibility in production, together with high machinery utilisation to lower production costs, and calculating optimum batch sizes while keeping inventory low.

Closely related factors include the establishment and communication of a clear vision for UNICCOMP and a restructuring of its operations from functional organisation to process-based organisation, accompanied by clear overall process responsibilities.



Setup of a CNC machine tool

Applied to the “Rotor Production” pilot project, this combination of methods has already delivered concrete success in the form of impressive results:

- › Setup times reduced by over 50 per cent
- › Batch sizes reduced by 50 per cent
- › Through times reduced by 50 per cent
- › Inventory costs reduced by 50 per cent at unchanged capacity utilisation

Based on these positive results, UNICCOMP will continuously expand this successful combination of methods in its changeover to process organisation.

“The main drivers for the changes are our need to increase competitive edge while boosting the flexibility of our production operations, aimed at fulfilling international customer requirements”, explains Roland Beckert. ■

PUBLISHING CREDITS

Published by

BAUER KOMPRESSOREN GmbH
Stäblistr. 8
81477 München
www.bauer-kompressoren.de

Editorial Team

Annette Adam, Ralf Deichelmann

Texts

Ralf Deichelmann, Richard Schmidt,
BAUER China, BAUER India, BAUER USA

Layout

Annette Adam

Photos

Page 1, 2: BAUER USA
Page 2, 3: BAUER KOMPRESSOREN Archive,
BAUER USA
Page 4, 5: BAUER India, Richard Schmidt
Page 6, 7: BAUER China, BAUER Russia,
Richard Schmidt

BAUER Calendar

EXHIBITIONS 4TH QUARTER 2016

| Exhibition | Topic | Location | Dates |
|---|------------------|----------------------|-------------------|
| BAUER COMPRESSORS Asia Pte. Ltd.(BCA) | | | |
| Manufacturing Indonesia | Industry/CNG/GIT | Kemayoran | 30.11.–03.12.2016 |
| BAUER COMPRESSORS Inc. (BCI) | | | |
| AUSA | Industry | Washington, DC | 03.–05.10.2016 |
| DEMA | Breathing Air | Las Vegas, NV | 16.–19.11.2016 |
| BAUER COMPRESSEURS S.A.S. (BCF) | | | |
| K-Show | Industry/GIT | Düsseldorf | 19.–26.10.2016 |
| Congrès national des sapeurs pompiers | Breathing Air | Tours | 21.–24.09.2016 |
| BAUER COMPRESSEURS S.A.S. (BCV) | | | |
| K-Show | Industry/GIT | Düsseldorf | 19.–26.10.2016 |
| BAUER KOMPRESSOREN Gulf (BKG) | | | |
| ADIPEC | Industry/CNG | Abu Dhabi | 07.–10.11.2016 |
| BAUER KOMPRESSOREN India Pvt. Ltd. (BKI) | | | |
| Tube India International 2016 | Industry/CNG | Mumbai | 05.–07.10.2016 |
| Petrotech 2016 | Industry/CNG | New Delhi | 05.–07.12.2016 |
| ALUCAST 2016: Bengaluru (BIEC) | Industry/CNG | New Delhi | 01.–03.12.2016 |
| BAUER COMPRESSORS OOO, Russia (BKR) | | | |
| KIOGE | Industry/CNG | Almaty, Kazakhstan | 05.–07.10.2016 |
| PCVExpo | Industry/CNG | Moscow | 25.–27.10.2016 |
| BAUER KOMPRESSOREN Shanghai Ltd. (BKS) | | | |
| ComVac ASIA 2016 | Industry | Shanghai, China | 01.–04.11.2016 |
| BAUER KOMPRESSOREN UK Ltd. (BUK) | | | |
| Dive Show | Breathing Air | Birmingham | 22.–23.10.2016 |
| BAUER KOMPRESSOREN Ges.m.b.H. (POS) | | | |
| MSV | Industry/CNG | Brno, Czech Republic | 03.–07.10.2016 |
| Retter | Breathing Air | Wels, Austria | 29.09.–01.10.2016 |
| 112 Expo | Breathing Air | Belgrade, Serbia | 11.–14.10.2016 |