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THE MAGAZINE OF  
OTTO BIHLER,  
MASCHINENFABRIK  
GMBH & CO. KG  
2013



**INNOVATION DRIVING GROWTH**



◀ About the cover photo

The invention of the wheel numbers among the greatest innovations in the history of humankind. It allowed previously unthinkable burdens to be transported over greater distances than ever before. And the wheel remains the subject of intensive research to this day. At the moment, for instance, researchers are investigating the use of thermoplastic fins in place of the traditional spoke and rim construction for wheels used in the automotive industry.

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The magazine of  
Otto Bihler Maschinenfabrik  
GmbH & Co. KG

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Dear readers,

After the economic collapse of 2009, the signs are once again pointing toward growth. Although this is undoubtedly an extremely welcome trend, many of our customers are still facing considerable challenges. This is not just due to the increasing relocation of production capacities to low-cost countries and the intense global competition this results in. More important is that our industry in general is having to cope with constantly increasing energy and raw materials prices as well as with political constraints. To remain competitive in this environment, manufacturers need



committed, creative personnel, innovative machine and process technologies and optimized processes which will reduce their resource requirements in the long term. In the current issue of b.on.top, discover how our customers are benefiting from new investments to achieve substantial savings in all areas and ensure they retain their competitive advantage. To help them, we provide highly efficient, cutting-edge, German-made technology and the support of a global workforce of some 900 employees. Take advantage of our proven

machine and systems technology and our long-established expertise to boost the long-term profitability of your value-added processes. Together, we develop tailor-made, highly efficient production solutions that ensure optimum versatility, vertical production integration and value-added.

Naturally it demands courage and a readiness to innovate in order to make forward-looking investments in the current climate. However, bold decision-making is always worthwhile and the concrete, practical benefits that derive from it are illustrated by our three customer portraits. With a long-term vision and a keen understanding of their markets, they are investing in the very latest Bihler technology which has enabled them to position themselves successfully in the face of the competition.

For us as well, courage, decisive action and continuous further development are vital prerequisites if we are to create successful new solutions in the fields of machines, equipment and process technology. On the occasion of the 60th anniversary of the founding of our company, I would like to thank you most sincerely for your trust and confidence and for the excellent spirit of cooperation between us. I look forward to overcoming new challenges together in the future and I am certain that our innovations will keep us on the path to success! I hope you enjoy reading the current edition,

Mathias Bihler



8



14



22

24



2 IMPRINT

3 EDITORIAL

6 MAGAZINE

**1953 – A very special year**  
**New blood for the project management team**  
**The new RP 5000 radial press**  
**The new welding guide**

8 FOCUS

**Innovation driving growth**  
 Increasing value added and boosting efficiency

14 BEST PRACTICE

**ABB Stotz GmbH, Heidelberg:**  
 Rely on innovations!

20 OUTLOOK 1

**Professor Matthias Kleiner:**  
 The courage for new ideas:  
 The risk is worth it

22 OUTLOOK 2

**Dr. Rainer Esser:**  
 We cooperate to put excellent ideas into practice

24 SOLUTIONS

**Bihler's new manufacturing solutions:**  
 Ideally equipped for the tasks of the future



32 B.INSIDE

36 APPLICATIONS 1

**Scheuermann + Heilig GmbH,  
Buchen-Hainstadt:** Foundation  
for future innovations

38 APPLICATIONS 2

**Leicht + Müller, Remchingen:**  
Worthwhile investment

40 APPLICATIONS 3

**Saxonia Franke GmbH & Co. KG,  
Göppingen:** Innovations as the  
recipe for success

42 BIHLERSHIP

**All-round machine service**

44 MATHIAS BIHLER MEETS...

**Scheuermann + Heilig GmbH,  
Schnöring GmbH and the  
M. S. Ambrogio Group**

52 BIHLER GLOSSARY

**Stamping and Forming Engineer**

54 ON TOP

**Hiking tip:**  
The splendor of the Hochplatte



## 60 YEARS OF BIHLER

## 1953 – A VERY SPECIAL YEAR



A look back at the early years: Otto Bihler in front of his workshop building in Halblech.

The 1950s stand, like no other decade, for the industrial upturn of the post-war period. 1953, in particular, was a year of global headlines. Thus, for example, Edmund Hillary and Tenzing Norgay became the first humans to climb Mount Everest in May of that

year and, in June, the citizens of East Germany revolted against their rulers.

#### 60 years of success

1953 was also the year in which Otto Bihler developed his first spring

winding machine, the UFA 1, in his small workshop. And shortly afterwards, he presented the world's first radial wire and strip bending machine, the RM 25. These innovations laid the foundations for the long-term success of the company Otto Bihler Maschinenfabrik which is celebrating its 60th anniversary this year.

#### Motto of the Company Exhibition

“60 years of Bihler – a success story” is the motto presiding over the BihlerTEC Company Exhibition which will be held from 8th to 11th October 2013 in Halblech. A fascinating record of the company's history is also being published for the Company Exhibition. ■

## EVEN MORE EFFICIENT PROJECT MANAGEMENT

# NEW BLOOD FOR THE PROJECT MANAGEMENT TEAM

The requirements imposed by today's global market are becoming ever more exacting. There is a growing demand for intelligent solutions for the manufacture of complete assemblies. With its know-how and the project management capabilities introduced in 2004, Bihler has the technical and organizational expertise to meet all requirements. With the appointment of Klaus Kärcher as head of the Project Management department, Bihler is now looking forward to handling its system projects even more efficiently.

#### Increasing customer satisfaction

The 54-year-old Kärcher previously worked for the global player

Freudenberg where he was responsible for complete systems in Europe. He first came into contact with Bihler during the joint “SUL” project which focused on the areas of narrow strips, forming and laser welding. “Bihler's corporate ethos and the fact that this German mid-sized business was so successful at the global level inspired me,” explains Kärcher. Together with his team of seven project managers, he is using high-performance project management systems to further improve process development at project start and drive the schedule controlling process forward. “The aim of everything we are doing is to further increase customer satisfaction” ■



Klaus Kärcher is the new head of Bihler's Project Management department.



The new RP 5000 radial press is optimally designed for the pressure calibration of mass-produced round components.

## OUTSTANDING PRECISION, VERSATILE APPLICATION

# THE NEW RP 5000 RADIAL PRESS

Round components can now be manufactured with even greater precision, thanks to the new patented NC radial press. The RP 5000 is perfectly designed to permit pressure calibration for a wide range of different round components and provides extremely high forming forces. Eight press segments simultaneously surround the workpiece at all times and guarantee that 100% of the applied force is centered on the component. The servo-controlled processing module does not require any mechanical control and can therefore be operated independently of the machine type.

### High forming and cycle speeds

The RP 5000 radial press makes it possible to achieve forming forces of up to 5000 kN total surface pressure and speeds of up to 150 strokes per minute. The maximum diameter of the round component is 150 mm and the maximum length 140 mm. The servomechanical mode of operation guarantees a continuous stroke adjustment range which can be programmed at the controller. This capability increases the RP 5000's application scope. The time and expense associated with setup and adjustment operations are considerably reduced.

### Variable calibration, fast setup

The radial press can be operated in path- or force-control mode. It is therefore possible to calibrate the external or internal diameter with or without core for an extremely wide range of applications and to meet the most diverse requirements. The active tooling components can be designed on a component-specific basis and function as a quick-change system. The fact that all operating steps are monitored by the VariControl VC 1 controller guarantees true-to-process production. ■

## FULLY UPDATED AND REVISED

# THE NEW BIHLER WELDING GUIDE

Bihler welding guide is the first-stop reference for enhanced production efficiency. It explains all resistance welding processes clearly and comprehensibly. It describes Bihler's hardware for welding technology, presents interesting application examples and provides a number of useful tips for practical work.

### Even more practical tips

The welding guide has now been completely revised and therefore contains even more technical de-

tails. It also includes more than 40 new figures, graphics and tables. Users will also benefit from the newly added practical tips, for example regarding the correct polarity during welding or the correct arrangement of the electrodes. The revised version also contains many new chapters, including on the topics "Welding and contact materials" and "Electrodes", as well as more sample applications. With its indexes, glossary and bibliography, the welding guide is the perfect, informative reference work on the subject. ■



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# PROGRESS THROUGH EVOLUTION





INCREASING VALUE ADDED AND BOOSTING EFFICIENCY

# INNOVATION DRIVING GROWTH



Rising energy and raw materials costs, increased competition in global markets and a growing demand for fast, versatile manufacturing solutions are the current challenges that impact most particularly on the metalworking industry. Otto Bihler Maschinenfabrik shows how these challenges can lead to genuine innovations. As a driver of innovation and a development partner offering forward-looking machine systems, process technologies and processing operations, the company has long been setting new standards in the field of stamping and bending technology – and consequently ensures maximized value-added in production and greater efficiency during manufacture.

Innovative new products and processes “made in Germany” have always been the driving force and main strength of the German economy and guarantors of job security. In international comparative studies such as the European Commission’s Innovation Union Scoreboard 2013, Germany ranks second behind Sweden and therefore counts as one of the drivers of innovation in Europe. According to a survey conducted in 2012 by the Center for European Economic Research, almost half of all the companies in Germany are active innovators. Many small and mid-sized companies are global leaders in the technology and systems used in their industries. International comparisons testify to the outstanding innovation skills of German enterprises. This is

particularly true of the machine and systems engineering sector. According to a current study conducted by the Verband Deutscher Maschinen- und Anlagenbau (German Engineering Federation – VDMA), this sector is one of the most innovative branches of industry and an intensive center of research. Three quarters of all enterprises in this sector have successfully concluded at least one innovation project between 2009 and 2011. The mechanical engineering field is also a front-runner in terms of patent applications.

#### **The innovation process – a complex challenge**

But how can innovations be implemented in the form of new products





**The starting point for decades of success: The world's first radial wire and strip bending machine developed in 1955/56 by Otto Bihler.**

or processes? In general, the innovation process starts with a discovery or an idea that responds to a specific need. These ideas have to be nurtured and further developed as concepts. Research and development results in prototypes and new process technologies. It is then necessary to decide whether to act as an innovator and initiate the production of these new products or to optimize in order to further develop the corresponding products, procedures or services in a practical environment. Marketing and Sales then take over the task of distributing these new products and ideas which, in turn, may inspire further innovations. This process, which in theory seems very simple, can often turn out to be extremely complex and time-consuming in practice since it is dependent on global events and can be spread out over a period of years.

Nevertheless, most of the major branches of industry continue to harbor a significant potential for

innovation. This is particularly true of the metalworking industry. The challenges currently facing this sector lie primarily in the constant rise in energy and raw materials costs and the growth in competition resulting from low-cost manufacture in low-wage countries. At the same time, there is a growing demand for extremely versatile production solutions that make it possible to manufacture the desired volumes quickly and economically.

#### **The focus: Maximum benefit for the customer**

Otto Bihler Maschinenfabrik shows how current market demands can lead to genuine innovations. Because this leading international system supplier of forming, welding and assembly technology, which is this year celebrating its 60th company anniversary, is setting new standards in the world of stamping and bending technology with its innovative machine systems and process capabilities – today just as it did during the early years of its existence when Otto Bihler revolutionized the metalworking world with his ground-breaking innovations. He recognized the enormous need for new machine technology that characterized the post-war years and developed the world's first radial wire and strip bending machine, the RM 25, during the mid-1950s. This suddenly made it possible to manufacture what, by the standards of the time, were highly complex components on a single ma-

chine quickly, reliably and economically. "And today, our aim during the development of new solutions in the machine and equipment sector, as well as in the field of process technology, is still to increase manufacturing efficiency and boost value-added during production," explains Mathias Bihler. "The focus is always on the benefit to our customers because it is this that brings them long-term success and secures our own future."

#### **Bihler as development partner**

Working in close cooperation with its customers, Bihler has, in recent years, developed a wide range of processes and procedures that have made it possible to achieve enormous savings in terms of costs and resources. One example is the narrow strip laser forming (SUL) technology that Bihler developed in partnership with Freudenberg (a stamping and forming technology specialist) and Trumpf (laser and systems technology). Compared to the conventional technology, the new approach saves approximately 1,800 tonnes of steel per year while reducing carbon dioxide emissions by around 2,700 tonnes. As a result, it was distinguished as a particularly forward-looking technology with the German Innovation Award and Climate and Environment Innovation Award 2011.

Other examples of Bihler's innovation can be found, for example, in the field of electromobility. In this sector, for instance, Bihler de-



**Bihler's most recent innovation: the GRM-NC production system. The system opens up new, highly efficient production possibilities offering maximum flexibility and vertical integration.**

livered the process technology for the construction of hub motors and developed a production system for the manufacture of battery cases for electric vehicles.

Naturally, Bihler's close, partnership-based relations with its customers play a crucial role in this type of joint development. Here, we strive for an entirely open and honest relationship that is vital if we are to work together with our customers to analyze their current processes and find solutions for their optimization.

#### **Bihler as driver of innovation**

At the same time, Bihler acts as an independent driver of innovation through the development of new products and processes – which are always geared to meet the demands of the market and our customers. “The current challenge facing, for example, suppliers in the automotive, electronics or medical technology industries is that there is no longer a demand for very-high-volume runs which tie up capital when held as stock,” explains Bernd Hausmann, Head of Development, Design & Production. “Instead, customers want rapid turnaround and quick deliveries. This demands machine concepts that cut setup times, increase

throughput and generally increase flexibility during production.”

It was precisely to meet these requirements that Bihler further developed its in-house NC technology to create the GRM-NC production system and the BIMERIC NC production and assembly system. Both of these systems proved to be a spectacular success the first time they were presented at a trade fair because they made one thing crystal clear: These innovations are revolutionizing the world of stamping-bending and forming technology. “Bihler's NC technology has already opened up completely new production possibilities for many of our customers by combining exceptional flexibility and vertical production integration,” explains Hausmann. “As a result, they can now manufacture much more economically and efficiently and offer a much wider range of components and assemblies than in the past.”

#### **Changing trends throughout the industry**

Even though conventional, mechanically controlled machines will continue to play a role for Bihler because of their outstanding suitability for the high-throughput manufac-

ture of extremely large quantities of mass-produced parts, a change of trend is nevertheless emerging in the field of forming technology. “In the worlds of stamping, bending and assembly technology we are witnessing a change of generation toward servo technology, and not just in the case of stamping and bending machines but also at the level of presses,” summarizes Mathias Bihler. “One of the advantages lies in the fact that the tools' travel-time profiles can be optimally adapted to the material flow properties.” This not only improves component quality even further but also, in some cases, vastly reduces material consumption. The challenge is to adapt the component to the reduced cross-section in such a way that there is no loss of quality. “We actively go to our customers and show them exactly how they can go about making the corresponding savings and optimizations,” explains Mathias Bihler. “At the same time, we intensively strive to continuously improve our performance and to constantly push the boundaries of what technology can do.” That is also the vital precondition behind the ability to produce forward-looking innovations – as Bihler has been successfully doing for the last 60 years. ■



# COMPETITIVE MANUFACTURING?







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ABB STOTZ-KONTAKT GMBH HEIDELBERG

# RELY ON INNOVATIONS!



Everything under control: The MES system allows Thomas Bernauer, Head of Central Parts Production (left) and Klaus Steinbrenner, Head of the manufacturing team, to precisely analyze all the processes.



Innovations have always been at the core of the ABB Group. This is particularly true for the Heidelberg facility, which manufactures some 50 million circuit breakers a year in its main line of business. Here, innovations from Bihler make a crucial contribution to the success of the business. Such innovations include the PEMTEC method for increasing manufacturing efficiency, the MES system for optimizing production processes and brand-new Bihler systems for extending the product portfolio.

In 1923, Hugo Stotz combined thermal and electromagnetic tripping in a single switch, and thus developed a new, innovative automatic circuit breaker that revolutionized electrical engineering. The new automatic circuit breaker could simply be screwed into the existing fuse socket and laid the foundation for the huge success of a company that is today driving innovation and develops, manufactures and distributes electrical products for equipping and automating buildings, machines and systems. The factory facilities at ABB STOTZ-KONTAKT GmbH in Heidelberg now produce around 50 millions circuit breakers a year. Thomas Bernauer, Head of Central Parts Production believes that “inventiveness and ingenuity remain the distinctive feature of ABB STOTZ-KONTAKT to this day, particularly when the challenge is

to protect complex, powerful electric systems. To remain competitive in the global market, we are constantly investing in innovations that will increase productivity, make our processes more efficient and ensure that the components are always of the very highest quality.”

#### **PEM technology offers 80 percent time savings**

ABB STOTZ-KONTAKT satisfies these expectations in a wide variety of ways. One example of this is the precise electrochemical metal erosion technology (PEM) used in the production of active tool components for the manufacture of arc chutes. Unlike traditional erosion techniques, the cathode is not subject to wear, which means that only one tool is required when using PEM technology. Thomas Bernauer explains: “The way in which



we used to manufacture arc chutes was extremely complex, and this was exacerbated by lengthy calibration processes and frequent tool changes. We have been using PEM technology since 2009, when we expanded our production capacity on the basis of Bihler technology. This allowed us to save around 80 percent of the time we used to need for manufacturing tool components, and production of the assemblies on a GRM 80E stamping and bending machine is now stable, ultra-precise and extremely fast, effectively in a single operation.”

#### **MES system increases manufacturing efficiency by eight percent**

Another measure taken to improve the efficiency of workflows and manufacturing procedures is the use of the MES system, which captures a complete record of all process information on a system in real-time and permits detailed analysis of malfunctions and operating times, for instance. This system was developed by ViewSystems in cooperation with

Bihler and ABB. The data acquired in this way forms the vital basis for developing appropriate measures to reduce downtime or make design changes, for instance. In Thomas Bernauer’s opinion, “it is an ideal tool for avoiding errors, ensuring quality and boosting efficiency, that also reveals errors that are assumed to be insignificant, but which can add up to cause massive malfunctions if they occur with any frequency.” A total of 17 Bihler machines are now subject to constant online analysis. Bernauer: “The Bihler VC1 controller is a great benefit, because it really does provide all the information, data which forms the ideal basis for the MES system. Overall, this allowed us to improve the efficiency and performance of our systems by more than eight percent.”

#### **New Bihler systems for innovative component manufacture**

As well as optimizing existing processes, ABB STOTZ-KONTAKT has also invested in brand-new, extreme-

ly high-performance systems, such as the two GRM 80P stamping and bending machines from Bihler, which have recently started manufacturing the moving contacts for the circuit breakers. The impressive thing is that a single GRM 80P machine is able to manufacture 200 of the complex assemblies per minute, performing all the processing steps completely automatically. Klaus Steinbrenner, Head of the manufacturing team in Parts Production explains: “The good thing about the Bihler machines is that it is easy to combine a great number of individual, standard work processes to a single complex workflow that nevertheless still remains manageable. The GRM 80P allows us to produce ready-to-use parts economically, reliably and without interruptions almost three times as fast compared with other manufacturing techniques.”

#### **Constructive, long-term partnership**

Thomas Bernauer sums up: “All these technical optimizations and



**PEM technology has been in use since 2009, for instance in manufacturing active tool components. This has made it possible to save around 80 percent of the time previously needed to manufacture tools.**





The moving contacts for the circuit breakers are manufactured on two GRM 80P stamping and bending machines. At 200 parts per minute on each machine, throughput is around three times as high as with alternative techniques.

investments are, of course, crucial for our business success. But it is equally important to have a strong, flexible and innovative partner, and we have found that in the shape of Otto Bihler Maschinenfabrik. "One of the outstanding things about Bihler is their willingness to continue constructively developing standard solutions so that, together, we can successfully implement new, tailored manufacturing techniques." This willingness, coupled with many years of expertise and the broad technology portfolio of Otto Bihler Maschinenfabrik, thus also forms the ideal basis for a fruitful ongoing partnership between the two companies, a partnership that already has a 40-year history. ■

And manufacture of multi-part assemblies also runs smoothly on all the Bihler machines. All the individual work operations can be integrated into a single, complex, but nevertheless manageable overall workflow.



## THE COURAGE FOR NEW IDEAS

# “THE RISK IS WORTH IT”

The study and development of forward-looking methods and processes that help turn initial ideas into genuine innovations often conceal many different risks. In this interview, Professor Matthias Kleiner explains what conditions must be satisfied if ideas are to be implemented successfully and where innovation can be looked for today, in particular in the field of forming technology.

### **b. on top:** What are innovations and how can they emerge?

**Professor Matthias Kleiner:** On the one hand, innovations are new products, services or functions whose emergence would not have been conceivable at the time they were developed. On the other, innovations are defined by the fact that they are purposefully implemented and succeed in their marketplace. To be able to develop genuine innovations, it is crucial to understand the market and the practical needs of industry – just as it is to have a feeling for the requirements that might emerge in the future and how to position oneself actively in the light of these new demands. In the field of production technology, this

means designing new manufacturing paths and new products.

### **b. on top:** What examples can you give us of successfully positioned innovations?

**Professor Matthias Kleiner:** One good example in the automotive industry is the use of finite element simulations for component modeling. Derided just thirty years ago, it is now standard procedure. Innovations can also be seen in the steel industry. In the past, steel for bodywork components generally had a tensile strength of 200-300 MPa. Nowadays, the values are almost ten times higher. Just as innovative is the development and use of servo technology in new drive units.

It permits completely new force-stroke relationships and has given rise to a whole range of subsequent new developments.

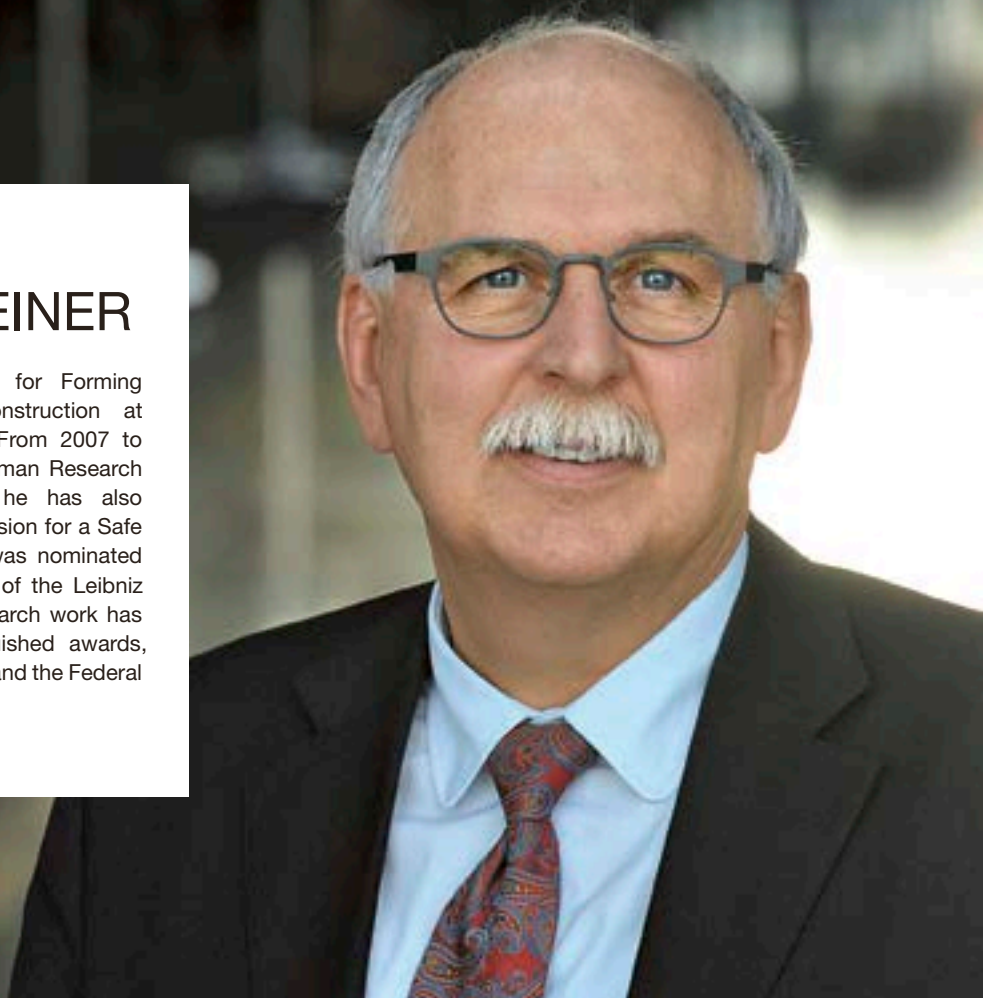
### **b. on top:** How important is the research and development conducted in universities for the market?

**Professor Matthias Kleiner:** It is particularly important because it is precisely in this environment that it is possible to investigate research topics that are associated with a high level of risk that could not be borne by a single enterprise alone. And the focus here is less on simple optimizations and more on the creation of genuine innovations. For this you need talented, forward-



## PROFESSOR MATTHIAS KLEINER

has been head of the Institute for Forming Technology and Lightweight Construction at Dortmund University since 2004. From 2007 to 2012, he was President of the German Research Foundation (DFG). Since 2011, he has also headed the German Ethics Commission for a Safe Energy Supply. In April 2013, he was nominated as a candidate for the presidency of the Leibniz Association. Matthias Kleiner's research work has earned him a number of distinguished awards, including the Leibniz Award in 1997 and the Federal Cross of Merit, 1st class, in 2010.



looking individuals with the courage to pursue new ideas. That isn't easy and it comes with many risks. Ultimately, though, the risk is worth it. This is also true of the research and development that universities conduct in cooperation with industry. Here, necessarily, the focus is more on usability and return on investment.

**b. on top: How do you judge Otto Bihler Maschinenfabrik in terms of innovation and new development?**

**Professor Matthias Kleiner:** A little while ago, I visited Bihler in Halblech to find out about their most recent technological developments. And I was genuinely impressed by

the enormous innovative strength that this company possesses. The innovation process runs through the entire Bihler philosophy. What this actually means in practice is demonstrated by Bihler's systems, which can be seen, for example, in the Dortmund Center for Stamping Technology. Here, we also have access to the corresponding testing technology.

**b. on top: In your opinion, where is there still potential for innovation – in particular in the field of stamping technology?**

**Professor Matthias Kleiner:** Developments over the last 30 years have shown that whenever previously distinct forming processes

have been integrated, innovations have resulted. And there is still a lot of potential in this field today. Another incentive to innovate can be found in the constant increase in energy and raw materials prices, with the result that solutions designed to boost efficiency will become even more important in the future. Another major opportunity for forming technology lies in the field of hybrid material systems. The task here is to use forming processes to manufacture the multi-material mix or to form this type of material. In the automotive industry, in particular, forming technology can thus play the role of a joining technology. ■

## INNOVATION IN THE MEDIA WORLD

# “WE COOPERATE TO PUT EXCELLENT IDEAS INTO PRACTICE”

To see an innovation through to successful completion can practically mean having to reinvent oneself. And there is every reason to believe that the Hamburg-based ZEIT, a newspaper rich in tradition, has done just this. And one of the people who have accompanied, and indeed driven, this process is Dr. Rainer Esser, Managing Director of the Zeitverlag publishing house. He is convinced: Creative employees are the key to successful innovation. The task then is not to rest on one's laurels but to constantly strive to become better.

**b. on top:** Dr. Esser, we want to talk about innovation. Is there anyone you admire because they had a ground-breaking idea and then worked with determination to turn it into a reality?

**Dr. Rainer Esser:** For me, Steve Jobs was an exceptional person: a creative thinker and an entrepreneur rolled into one. He didn't just have exceptional and far-sighted ideas but also possessed the courage and determination to put them into prac-

tice. And the ambition to do this as perfectly as possible.

**b. on top:** What would you describe as the best idea of your own life?

**Dr. Rainer Esser:** Without doubt, one of the best ideas I ever had was to join ZEIT 14 years ago. The environment here is perfect for turning ideas into innovations. We have many creative talents who come up with strokes of genius every day. In

recent years, the outstanding ideas contributed by individuals and their practical implementation by the team as a whole have resulted in many new developments and, to a large extent, formed the basis for the success of the Zeitverlag Group today.

**b. on top:** What does that mean in concrete terms? Media from outside your own group have acknowledged with some admiration that DIE ZEIT has reinvented itself – driven by its Editors-in-Chief from Roger de Weck through to Giovanni di Lorenzo. What do you think about this opinion?

**Dr. Rainer Esser:** It is true. The crucial factor contributing to the success of DIE ZEIT is, and always has been, a strong editorial team headed by an ambitious Editor-in-Chief who is ready to embrace change. A good newspaper moves with the times and in tune with its readers. It changes quite naturally without losing its character. With Giovanni di Lorenzo, DIE ZEIT is continuing impressively on this course. He and his colleagues are constantly surprising our readers with new topics, writers and formats. Whether with pages

## DR. RAINER ESSER

has been Managing Director of Zeitverlag Gerd Bucerius GmbH & Co. KG in Hamburg, Germany since 1999. This has been the home of the weekly newspaper DIE ZEIT for 67 years. Since 1983, the newspaper's co-editor has been former German Chancellor Helmut Schmidt. One comparatively recent product of growing importance that is offered by the publishing house is the Internet-based ZEIT ONLINE. After training to be a banker, Rainer Esser studied law and graduated with a law degree. He attended the German School of Journalism in Munich and was Editor-in-Chief of Business Law Europe/Tax Letter Europe. After working as Managing Director of the Spotlight publishing house, he moved to Main-Post in Würzburg in 1995. Dr. Rainer Esser lives with his family in Hamburg.



devoted to children or football, the "Investigative" section or a section on "Belief & Doubt".

**b. on top:** And in your job as the publishing house's Managing Director?

**Dr. Rainer Esser:** Alongside our editorial concerns, we, as publishers, encourage creative employees with good ideas. We never rest on our laurels but instead always try to improve and offer our readers more. We bring in a lot of new ideas quickly and unbureaucratically. As a result, recent years have seen DIE ZEIT develop from a simple weekly paper to become a comprehensive educational provider: with its students' campus and conferences and the further education program offered by the ZEIT ACADEMY.

Or with the many different offerings intended for the coming generation, from the ZEIT LEO children's magazine through our students' guides and the e-Fellows scholarship program and on to numerous higher education events.

**b. on top:** Recently, in the summer of 2013, Amazon founder Jeff Bezos – an Internet entrepreneur – purchased the Washington Post. Observers were then saying things like "in 15 years there won't be any more printed newspapers anyway." What's your opinion on that?

**Dr. Rainer Esser:** The growth in our circulation and penetration contradicts this view of the future. In the first quarter of 2013, we sold almost 520,000 copies. Never before has DIE ZEIT achieved a higher cir-

ulation. The printed version of DIE ZEIT will continue to be the largest source of revenue for the publishing group over the coming years. At the same time, the level of digital business is growing encouragingly. ZEIT ONLINE is constantly reaching wider audiences and the ZEIT app is playing an ever more important role. As you can see: I do not share the opinion that online media are the natural enemy of print.

**b. on top:** Are there any technological innovations that have given you particular pleasure?

**Dr. Rainer Esser:** This is where we get back to Steve Jobs. The iPad and other tablets are truly fantastic new platforms that are genuinely helping to ensure that quality journalism has a future. ■

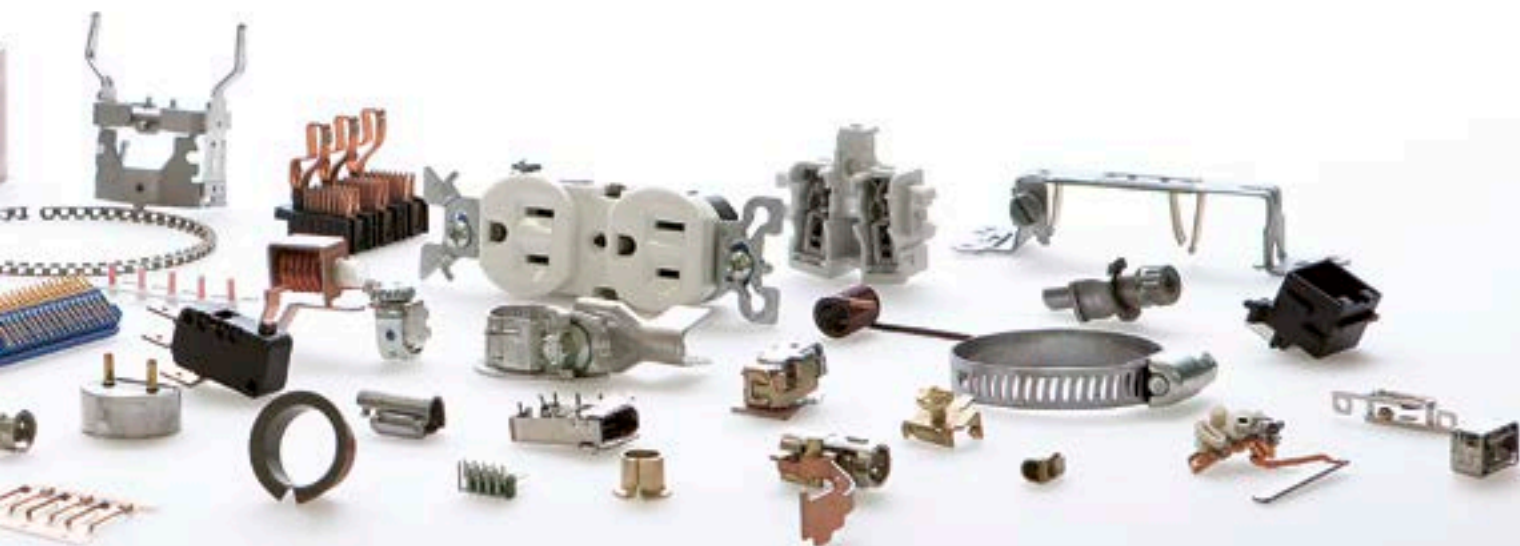


BIHLER'S NEW PRODUCTION SOLUTIONS

# IDEALLY EQUIPPED FOR THE TASKS OF THE FUTURE



Mechanical, hybrid or servo-controlled – Bihler now converts its production solutions for use on one of these three machine types in line with its customers' requirements. The focus is always on achieving maximum value added for the customer through highly efficient machine technology coupled with sophisticated production processes. As a result, all Bihler's customers are already ideally prepared for their future tasks – whatever demands the market may make of tomorrow's metalworking industry.



Escalating raw materials prices, shrinking batch sizes due to the growing numbers of products and product variants, as well as increasingly complex manufacturing and assembly operations represent the greatest challenges to the metalworking industry today. To overcome precisely these challenges, Otto Bihler Maschinenfabrik supplies innovative manufacturing solutions that open up new opportunities for customers through forward-looking production equipment and state-of-the-art manufacturing processes – and help them remain competitive in their global markets.

#### Reduced cross-sections to counter increasing raw materials prices

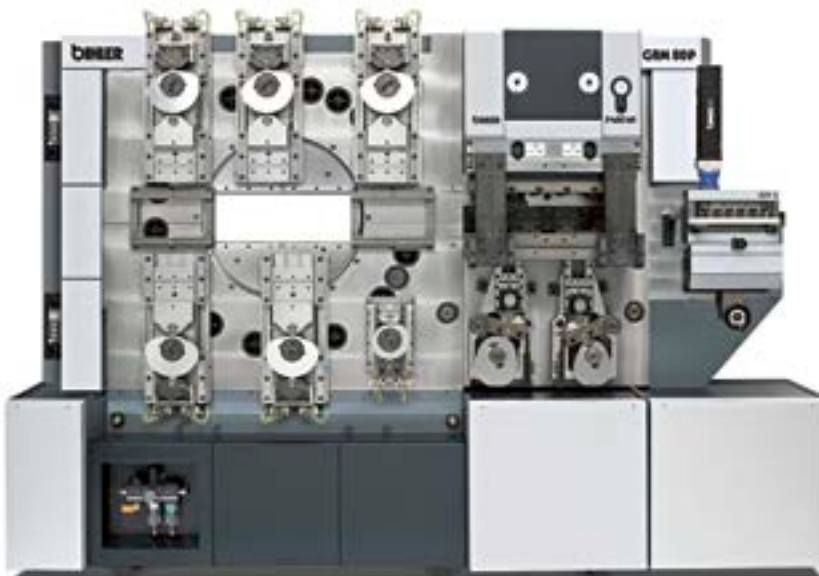
Manufacturers are increasingly turning to high-strength materials to overcome the challenge of increasing raw materials prices. These make it possible to reduce component cross-sections and improve the functionality and quality of parts. However, smaller cross-sections often go hand-in-hand with less satisfactory mechanical properties which sometimes have to be compensated for by increasing the strength of the semi-manufactured products. To

find the best solutions in such cases, Bihler offers its customers support as of a very early stage. The component is first optimized in terms of the employed material and the component geometry. The best possible manufacturing process is then developed on a machine system that is perfectly designed for processing the component.

The key objective is to achieve the most cost-efficient production possible while cutting resource consumption and maintaining constant manufacturing quality. ■

### MECHANICAL STAMPING AND BENDING MACHINES:

## THE IDEAL SOLUTION FOR MASS PRODUCTION



The GRM 80P is ideal for the mechanical mass production of very high runs of stamped and bended parts.

Bihler's mechanical stamping and bending machines are the first-choice solution when it comes to the mass production of stamped and bended parts and very high volume assemblies with few variants. These systems include the machines in the RM, GRM and Multicenter series. These outstandingly fast-running machines operate at speeds of up to 800 strokes/min. and provide high nominal press capacities of up to 700 kN. They also offer extremely versatile configuration possibilities thanks to their long machining paths. Thus, for example, the GRM 80P possesses a machining path of more than 2,100 mm when linear progressive tools are used and the MC 120, two-sided, a path of more than 3,000 mm. This means: Mechanical stamping and bending machines make it possible to perform a large number of different operations, either sequentially or in parallel, within an end-to-end process from the input material through to the end product. The VariControl VC 1 machine and process controller permits the extremely user-friendly operation of all mechanical stamping and bending machines. ■



HYBRID STAMPING AND BENDING MACHINES:

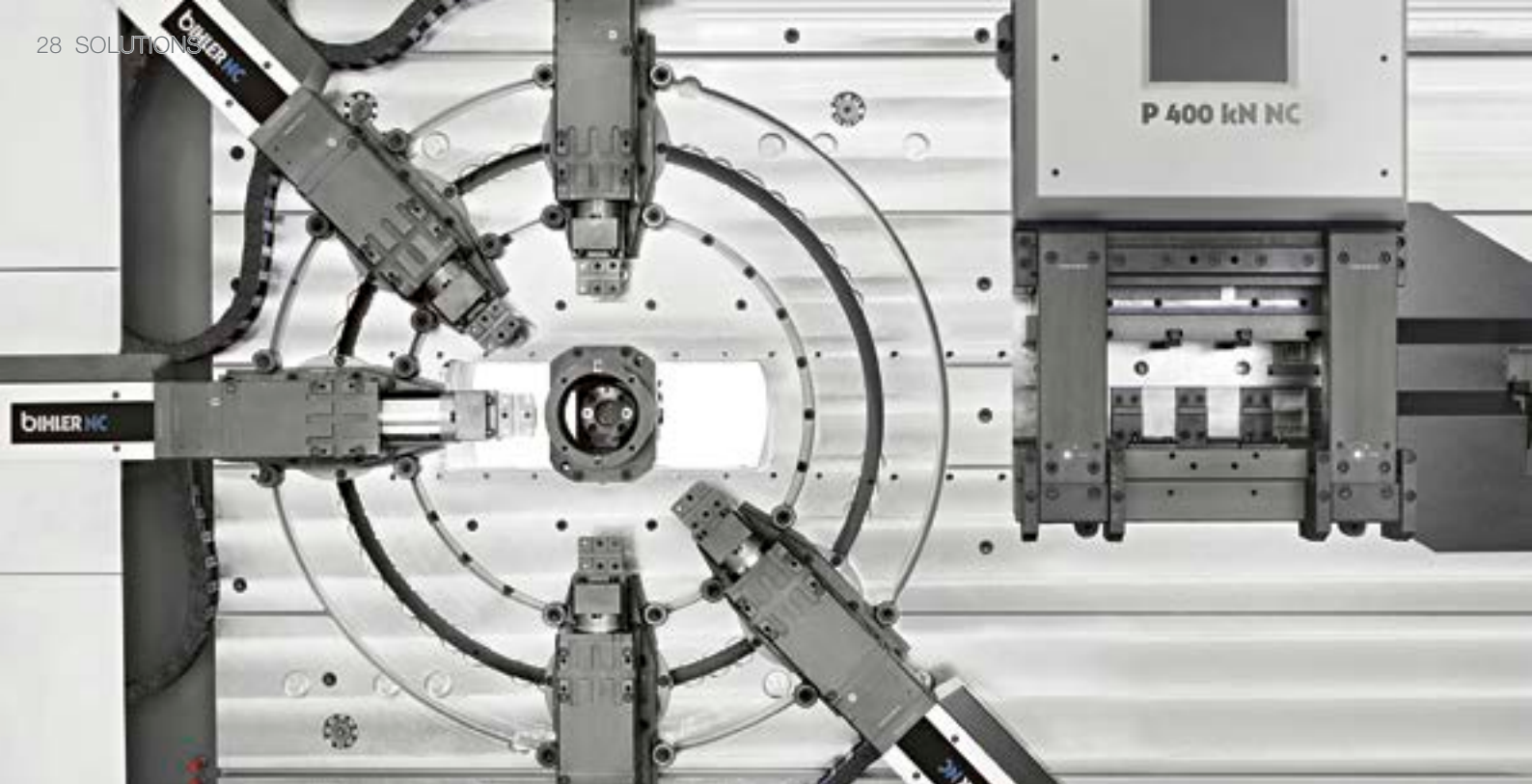
# IDEAL FOR THE PRODUCTION OF COMPLEX ASSEMBLIES



Hybrid stamping and bending machines represent a combination of mechanical and servo-controlled components. Fundamentally, they consist of a mechanical stamping and bending machine that is equipped with servo-controlled modules and units. They may take the form of conventional mechanical stamping and bending machines such as the RM 40P or GRM 80P equipped, for example, with an NC-controlled feed such as the RZV 2. It is also possible to add NC modules such as feed units, central mandrels, presses or tapping and screw insertion units. On these hybrid machines, it is therefore possible to perform movements independently

of the machine speed, further optimize processes and manufacture even more complex parts. They are used whenever manufacturers are called on to mass-produce complex individual parts that demand additional manufacturing processes such as pressing, tapping or screw insertion. ■

**Hybrid stamping and bending machines combine the advantages of mechanical systems with the benefits of servo-controlled NC modules. Their movements can therefore be executed independently of the machine feed.**



The servo-controlled GRM-NC system has been specially designed to cope with small batch sizes and a wide product range. Here, the servo technology guarantees very fast, one hundred percent reproducible setup and retooling operations between manufacturing cycles.

## SERVO-CONTROLLED STAMPING AND BENDING MACHINES: WELCOME TO THE FUTURE

The GRM-NC and RM-NC stamping and bending machines are Bihler's servo-controlled systems for the manufacture of conventional stamped and bended parts. They are the perfect manufacturing solution whenever small batch sizes, frequent retooling and a large number of different products and product variants are required. The servo-controlled GRM-NC system and its twin, the RM-NC, are both due to be presented for the first time at the BihlerTEC Company Exhibition. They permit a very fast, requirements-focused response to customer demands. In this way, they support the just-in-time manufacture of even very small runs of precision stamped and bended parts. Very fast, 100% reproducible setup and retooling operations are the crucial strengths of the two systems. This is the result of combining servo technology with state-of-the-art control technology. The result is fast,

reliable production, while the use of the VariControl VC 1 machine and process controller means that the systems are extremely easy to program and operate.

### Individually configured servo drives, self-correcting tools

Thanks to the use of individually configured servo drives, machining at each of the stations runs at optimum speed. This not only improves product quality and process reliability, but also considerably extends tool service lives. "The controller also recognizes geometrical discrepancies in the stamping strip or component and automatically corrects these during the manufacturing process without it being necessary to halt production," explains Bernd Haußmann, Head of Development, Design & Production. "This was a very tricky task that our engineers

recently solved in cooperation with Weidmüller and the Fraunhofer IPT." The controller also steps in when the machines reach their operating limit or maintenance is required – all with the aim of increasing machine uptimes and boosting productivity.

### Setups up to 9 times faster, 200% more manufacturing output

The RM-NC and GRM-NC also boast other advantages: The costs for new tools are significantly reduced and existing tools from the RM and GRM series can be easily integrated and optimized for use on the NC machines. In this way, the RM-NC and GRM-NC can replace a number of mechanical machines and allow users to boost output while simultaneously reacting faster to individual customer requirements. Compared to the RM or GRM series of mechanical stamping and bending machines,

output can be increased by up to 200%, batches can be processed in half the time and retooling times cut by up to a factor of 9. Previously time-consuming tasks such as aligning the slide units, adjusting the movements of the bending dies and setting the feed values can now be performed in a matter of minutes using the VC 1 controller.

#### Slide unit positioning at the touch of a button

These short retooling times are the result not only of the new controller technology but also of a number of sophisticated technical machine features such as the innovative, fully automatic slide positioning unit. This makes it possible to adjust the radi-

al position of the slide units at the simple touch of a button. Following initial setup, the slide positions are stored in the tool program. When the program is called again or after a tool change has been performed, the positions can be restored with 100% accuracy. Fast tool changing systems also help reduce setup and retooling times. ■

The standard BIMERIC BM 3000 production and assembly system maximizes efficiency and flexibility during the production of a range of assemblies.



SERVO TECHNOLOGY FOR ASSEMBLY MANUFACTURE:

## THE STANDARD SYSTEM: BIMERIC BM 3000

When complex assemblies have to be manufactured, and in particular when the corresponding batch sizes are small, Bihler has the optimum solution in the form of its BIMERIC production and assembly system. This extremely flexible NC system ensures exceptionally short setup times and consequently results in

highly economical manufacturing operations. A further advantage of the BIMERIC compared to mechanical production systems lies in the fact that the same configuration of processing units (press, bending units, conveyor belt, Pick & Place modules) can be used to handle a very wide range of different assemblies and the

associated variants. On a change of product, it is usually only necessary to change the active tooling components at the various units involved. The operator then simply has to call up the manufacturing parameters stored in the central VariControl VC 1 controller in order to start the immediate, one hundred percent repro-





ducible production of a new assembly or variant. If additional process steps – contact welding, for example – are required for subsequent process steps, then the standardized BihlerNC toolkit can be used.

#### Highly efficient end-to-end production with minimized setup times

The end-to-end manufacture of assemblies starts with the RZV 2 material feed which guides strip ma-

terial from the coil directly into the machine. The stamped and bended components of the assembly are then manufactured in the press and bending tool. In downstream operations (e.g. tapping, screw insertion), these components are further processed while still suspended on the stamping strip before being combined with fed-in components on the conveyor to form ready-for-use assemblies. BIMERIC users therefore benefit from end-to-end parts handling from the input material

right through to the ready-to-use assembly. In addition, the clear separation of the individual processing stations guarantees optimum access to all the stations for retooling and maintenance operations. The NC technology permits very short setup times, rapid reactions to changing customer requirements and a versatile response on changeovers to new products. ■



The BIMERIC SP production and assembly system is a revolutionary combination of the BIMERIC and SP 500 servo press for manufacturing assemblies using progressive tools.

FOR ASSEMBLY MANUFACTURE USING PROGRESSIVE TOOLS:

## BIMERIC SP MACHINE COMBINATION

The BIMERIC SP is a special variant of the BIMERIC. It is a combination of the BIMERIC and the SP 500 servo press which is optimally configured for the sequential production of assemblies. This is because the stamped parts manufactured using existing or new progressive tools in the 500 kN servo press are further

processed by the BIMERIC directly at the carrier strip without any intermediate logistical operations and are combined to form finished assemblies. This streamlines and simplifies the process chain, guarantees the consistent high quality of the manufactured assemblies, saves logistics costs and eliminates the

need for downstream machines. The minimized setup times mean that a huge variety of assemblies can be manufactured efficiently on this machine combination. A further bonus: The BIMERIC can also be used in combination with any other servo press. ■

# A SUCCESSFUL FUTURE WITH ALL SYSTEM TYPES

Mechanical stamping and bending machines will continue to show their strengths in the production of high-volume runs and wherever particularly high throughput is required. This also applies to hybrid system types. However, it is primarily the servo technology implemented and Bihler's new NC systems, such as the RM-NC and GRM-NC,

that form the innovative, efficient, high-performance manufacturing solutions that are opening up new horizons in the field of forming and assembly technology. As a result, all users are ideally prepared for the tasks of the future – and are able to benefit from a range of valuable solutions for their future business success. ■

## OVERVIEW OF THE PRODUCTION SOLUTIONS

Whether in the field of mechanical, hybrid or servo-controlled stamping and bending machines: Bihler technology can deliver exactly the right solution for a huge range of production requirements. All of the machine types ensure maximum versatility coupled with outstanding freedom of configuration.

In this way, a large number of different operations can be executed on a single workplate independently of one another. These machines permit the use of vertical and horizontal planes of motion as well as the diagonal arrangement of the processing components.

This freedom in the use of the available space also extends to the infeed of a very wide range of materials: The required materials can be fed in individually from any direction.

All the necessary operations such as stamping, bending and assembly can be simultaneously combined on one and the same machine.

The stamping and bending stations in these machines are located in different positions. This spatial separation ensures that the individual tools can be easily accessed during installation and maintenance operations and guarantees a high level of machine availability. ■

### Mechanical stamping and bending machines

**Areas of use:** Production of very large batches of individual parts and/or assemblies with few changes of part type.

### Hybrid stamping and bending machines:

**Areas of use:** Production of complex individual parts that require additional manufacturing processes such as tapping or screw insertion.

### Servo-controlled stamping and bending machines and NC systems

**Areas of use:** Production of small batches of individual parts and/or assemblies with frequent changes of part type.

## CONTACT

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# BIHLER INSIDE

Whether it be spark plugs, snow guards or automatic circuit breakers, you will find parts and assemblies manufactured on Bihler machines in virtually all areas of our daily lives. They are all characterized by extremely high quality and reliability and thus offer the necessary level of safety to all users.



## TAKING THE WEIGHT

Snow guards make sure that snow and ice stay on the roof rather than causing snow slides. The snow guards are rather like hooks, which are fitted over the entire surface of the roof, and can be attached to virtually any type of roof tile. All the snow guards have an identical triangular element that restrains the snow, but their length, the drilling pattern and bending will vary depending on how they are secured and on the construction of the roof. The Bihler COMBITEC CC1 Forming Center is ideal for manufacturing the sizable stamped/bended parts, as its high press and bending forces were specially conceived to produce long, large precision parts. As well as the high production speed of up to 60 parts per minute, the Bihler COMBITEC CC1 Forming Center also scores through short setup times when changing the variant being manufactured. ■



## DELIVERING POWER

Whether it be outboard motors, car engines or power saws, any combustion engine needs one or more spark plugs to provide the ignition spark between its electrodes to ignite the fuel/air mixture. Spark plugs are manufactured on machines such as the Bihler BIMERIC BM 1500 production and assembly system that delivers a throughput of up to 70 parts per minute. These produce a two-part assembly comprising the housing of the spark plug and the ground electrode. These can be combined with a variety of housing types with hexagonal, octagonal or custom shapes. The Bihler BIMERIC BM 1500 production and assembly system makes it possible to change the setup very quickly, in around 30 minutes, with fully automated exchange of the head. But the 30+ years of experience that Bihler has in the field of spark plug manufacture also help to ensure the highest possible level of quality and reliability during final assembly. ■





## KEEPING THE SPARKLE IN

“Buegel” or “swing top” caps offer a number of benefits compared with other types of bottle closure. Bottles can be opened and closed any number of times, and there is no need to use a bottle opener. Raw materials are saved and this in turn helps preserve the environment. A stopper, usually made of porcelain, and a rubber sealing ring make sure that bottles are sealed absolutely tightly, even if the contents are carbonated. The stopper is held in place on the top of the bottle with a wire spring that acts as a lever. The three-part assembly comprising the stopper and the two wire components is manufactured on a Bihler Multicenter MC 82. The complete system for production and assembly combines wire-bending and assembly technologies on a single machine and has a throughput of some 100 parts per minute. The Bihler BZ 2/5 processing center is now even used successfully to fit the completed caps to the bottles. ■





## CONTROLLING THE CIRCUITS

Circuit breakers are integral parts of any electrical installation. They protect equipment from excess currents and automatically interrupt the electrical circuit if it is overloaded or if a short circuit occurs. The positive trip mechanism is a key component of the circuit breaker. This ensures that the breaker trips immediately in the event of a short circuit, even if the switch is pressed or held in the "On" position. The floating component is manufactured on machines such as the Bihler GRM 80P stamping and bending machine. This allows fully automated production of up to 200 units per minute. This high level of production efficiency is also achieved for the other components of the circuit breaker, which can be manufactured superbly on a variety of Bihler production systems. ■



SCHEUERMANN + HEILIG GMBH, BUCHEN-HAINSTADT

# FOUNDATION FOR FUTURE INNOVATIONS

The ongoing expansion of their machining facilities to include new technologies is allowing Scheuermann + Heilig GmbH to successfully grow their German location. The most recent example of this is a Bihler GRM-NC, which significantly increases manufacturing throughput, while at the same time providing an ideal foundation for future innovations from the company.

The latest Bihler machine at Scheuermann + Heilig is a GRM-NC. It is used for manufacturing innovative assemblies for the automotive industry.





“Continuous optimization of the process chains is our primary concern,” says Steffen Scheuermann, Managing Director of Scheuermann + Heilig GmbH in Buchen-Hainstadt. “We provide our customers with the best possible support, and not only because of our technical innovations and market-leading quality. We also ensure that we remain competitive in a global market by adopting a sustainable, energy-efficient approach to our work, which is ultimately a logical extension of economic efficiency.” The expertise of Scheuermann + Heilig GmbH in this field was officially confirmed in the form of accreditation for the ISO 50001 energy management system that they have deployed, recognition that few German companies can boast. “This strengthens our German location and allows us to offer our customers greater value added in our product range. We are opening up entirely new markets and customer segments with our range of assemblies and system solutions.” Currently, the company successfully manufactures stamped parts, stamped/bended parts, springs and assembled parts for industries such as automotive manufacturing and electronics, as well as medical and environmental technology. With around 3500 active parts and a total of some 600 employees at the locations in Buchen-Hainstadt and Atibaia in Brazil, Scheuermann+ Heilig supplies its products to a range of market-leading companies across the globe.

#### The latest investment: GRM-NC

Steffen Scheuermann: “Currently, the market is demanding that we manufacture even more productively and flexibly while maintaining the highest levels of quality. In order to keep pace, we are constantly investing in the newest systems technology. This not only provides the basis for greater efficiency in production, but also lays the foundation for our future innovations.” The best examples of this are the new Bihler GRM NC, which was delivered in mid-2013

and the Bihler BIMERIC BM 4500, which was purchased at the end of 2012. The GRM NC is producing innovative assemblies for the automotive industry and the BIMERIC BM 4500 is being used in an important new project for the medical sector. These two systems are among the most recent additions to the machining facilities at Scheuermann + Heilig GmbH, which currently cover around 90 Bihler stamping and bending systems, approximately 45 eccentric presses and 130 winding machines for spring production.

aiming to continually modernize their Bihler machining equipment over the long-term. Andreas Pleschko: “This means that we will not only have cutting-edge technology and ideal production conditions, but will also quite simply make space for new systems.”

#### Worthwhile partnership

The collaboration with Otto Bihler Maschinenfabrik, founded in 1958, is an equally crucial aspect of successfully realizing new projects.

**Relying on cutting-edge technology:**  
**Managing Director Steffen Scheuermann (center), Andreas Pleschko, Head of Production (left) and Bernhard Schnorr, Head of development team.**



#### Reducing cycle times by half

Andreas Pleschko, Head of Production agrees: “Bihler is opening up entirely new perspectives for us with its NC technology. “This makes it possible not only to produce long runs economically and with high-quality, but also to manufacture short runs quickly and flexibly.” The performance of the new systems pays dividends, above all against the background of the demand for ever shorter delivery times and energy efficiency in use. Development team manager Bernhard Schnorr explains: “Initial test runs on the GRM NC have shown that cycle times can be reduced by 50 percent.” As a consequence, the company is

Steffen Scheuermann explains: “Our expectation of a long-term cooperation partners such as Bihler is that they will deliver machines that are conceived for the future and that will give us maximum flexibility in implementing our innovative and cost-effective tooling concepts. This will also guarantee that the business success that comes from our partnership will continue long into the future.” ■

[www.sh-gmbh.com](http://www.sh-gmbh.com)



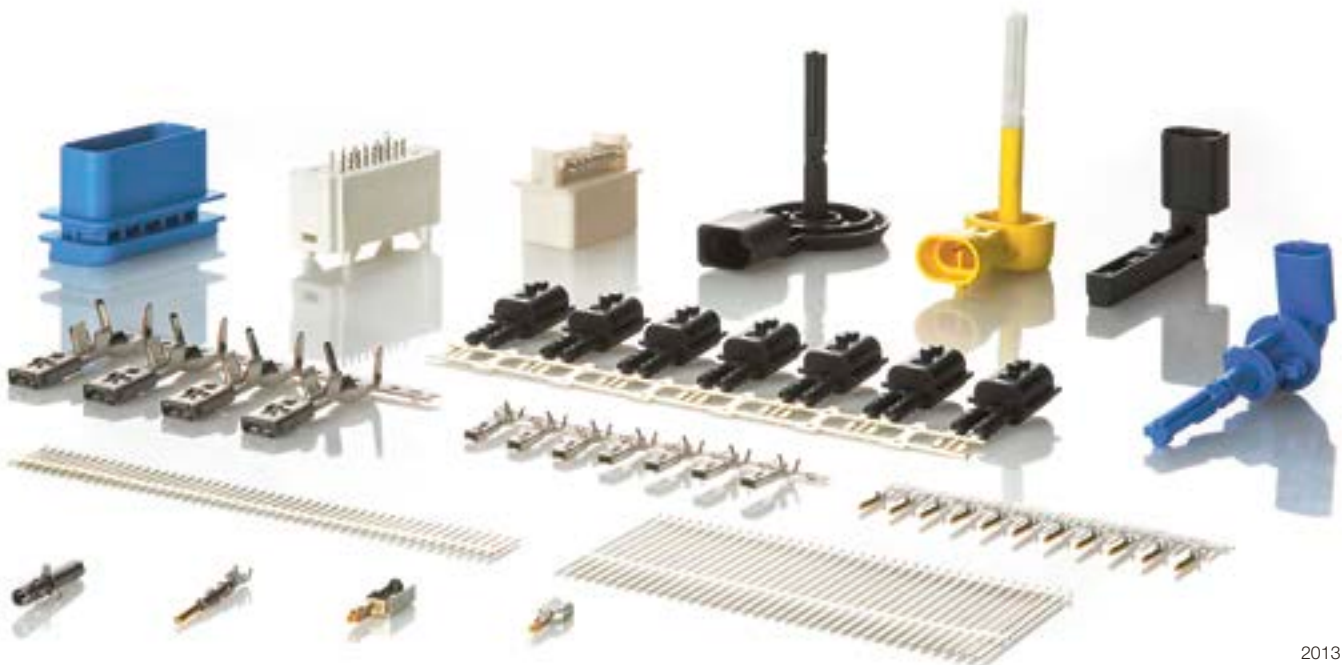




LEICHT + MÜLLER, REMCHINGEN

# WORTHWHILE INVESTMENT

Brand-new fields of business are beginning to open up for Leicht + Müller with their first Bihler machine, a BIMERIC BM 4500. The flexibility and cost effectiveness of the Bihler NC technology is allowing the company to leverage its innovativeness and manufacturing expertise, an approach that is already paying handsome dividends.



Klaus Müller, Managing Director of Leicht + Müller explains: "We were enthusiastic about the concept behind Bihler's NC technology right from the start. "It stands for precisely that spirit of innovation that has underpinned our success in the stamping/bending industry for the past 28 years, and so the decision to purchase the new BIMERIC 4500 was particularly easy." The Bihler BIMERIC 4500 was delivered in mid-2013 and is the company's first Bihler machine. Specialists for the manufacture of stamped parts and toolmaking, in 2005 the company founded L+M Syscotec so that it could also concentrate on the production of plastic over-molded stamped parts, complete assemblies and sensor technology. The spirit of innovation that permeates the company is evidenced by in-house developments such as the cut-around technique which emerged in 1985 and the single-stage production of multi-part stamped contacts including an integrated laser process in 1994, or the successful rollout in 2007 of a fully automated, high-end stamping line with integrated laser technology.

And now Leicht + Müller are on the threshold of another new success story with their Bihler BIMERIC BM 4500. As Managing Director Timo Leicht explains, "the Bihler NC technology allows us to cover a far larger product portfolio than ever before with a single machine. Not only that, it also allows our toolmakers to develop product-specific enhancements and extensions for the machine and manufacture components that exactly meet the requirements of the customer or product."

#### Custom quantities and wide range of products

The first project to run on the BIMERIC BM 4500 shows what this means in practice. This

involves manufacturing multipole connectors for use in commercial vehicles, and Leicht + Müller built the placement modules in their own plant engineering department. Managing Director Marco Müller explains: "The modular system makes it simple to connect a wide variety of different functions and devices. Depending on what is needed, stations can simply be selected or deselected and the stored programs keep the setup times to a minimum. Overall, the BIMERIC BM 4500 makes our manufacturing

frequently result in long downtimes, and valuable production space is also lost."

#### Further machine already planned

Thanks to the new BIMERIC BM 4500, these problems are a thing of the past. And the new manufacturing expertise is already having an impact. Klaus Müller sums up: "We are noticing real interest from the market, and we are getting plenty of new ideas and inquiries for projects. And our cooperation with Bihler is



**On the path to success:**  
Managing Directors Alexander Leicht, Timo Leicht, Marco Müller and Klaus Müller (from left to right).

operations much more flexible and cost efficient, precisely in the sorts of quantities that are cost effective for us and with the variety of products we are aiming for."

#### Less downtime, lower costs

Managing Director Alexander Leicht: "Our investment in Bihler technology has paid off in many respects." After all, without the BIMERIC BM 4500, items such as the commercial vehicle connectors would be manufactured in the traditional way on custom machines. It is not just that these are complex to manufacture, but they are also expensive to run and tie up staff. "Time constraints for production

giving us additional advantages on the market and opening up new sectors for us." Introduction of the BIMERIC BM 4500 has allowed Leicht + Müller to realize their plan of turning the Bihler NC technology into an additional, new and key pillar of the company's success. And if this investment delivers the expected rewards, the management has in principle already decided to place an order for another BIMERIC BM 4500. ■

[www.leicht-mueller.de](http://www.leicht-mueller.de)



**LEICHT + MÜLLER**





SAXONIA-FRANKE GMBH & CO KG, GÖPPINGEN

# INNOVATIONS AS THE RECIPE FOR SUCCESS

Increasing numbers of complete solutions from a single source, more efficient manufacturing processes and, of course, optimum component quality: These are the challenges currently faced by Saxonia-Franke GmbH & Co. KG in Göppingen. To meet these challenges, the company is continually investing in Bihler's machine technology. By bringing together existing manufacturing processes, this successfully opens up massive potential for increased performance.





The road to success for Saxonia-Franke GmbH & Co. KG in Göppingen started with a Bihler RM25 stamping and bending machine. Founded in 1981, the company used this machine to manufacture wire-formed parts for the automotive industry, and these still form the company's logo today. Nowadays, Saxonia-Franke manufactures around 2000 products, primarily securing and retaining components for the automotive, electrical and construction industries. These include, for instance, mountings for cable ducts in construction or components for turbochargers in vehicles. The 180 employees at the Göppingen location, which is also where Saxonia-Franke Formenbau & Werkzeugtechnik GmbH is located, are supported by 80 colleagues at Saxonia-Franke AG in Switzerland and the 54-strong team at Saxonia-Franke d.o.o. in Slovenia. Together, the various parts of the company are systematically expanding their range of products to include increasingly complex components. Managing Director Felix Franke explains: "Our success is based on innovation and drive. And this is our watchword when we respond to the demands of our customers, who increasingly need complete solutions from a single source, more efficient manufacturing and, of course, optimum component quality."

### Twice the productivity

One of the things that allows Saxonia-Franke to master these challenges is its 15 Bihler machines, which are constantly being supplemented by new investments. The past two years alone saw the addition of one RM 40K, one RM 40KS and two GRM 80P machines. Franke: "Innovative machine technology allows us to combine manufacturing processes that were previously performed on several different Bihler machines on a single Bihler machine of the latest generation." And the new Bihler machines offer an ideal basis for this. Head of Production Marcus Rieger: "The biggest advantage of the Bihler machines is the significant reduction in setup times thanks to the VC1 controller and the RZV feed, for example. Then there is the exceptional stability and process re-

liability offered by the machines as well as the high level of reproducibility when manufacturing parts." These advantages pay real dividends in practice. Martin Schweiss, team leader in the Bihler department at Saxonia-Franke: "The new Bihler machines allowed us to increase productivity by up to 100 percent in some cases. Higher stroke rates, longer service life and setup times that are 50 percent shorter have given us more free capacity on the machine, allowing us to manufacture other products, for instance."

tial using innovative machine technology. And to do this, we shall remain true to reliable market leaders such as Bihler, a partner who is itself committed to innovation and helps to guarantee our continued success with high-performance products." ■



**Ideally equipped for the future: Managing Director Felix Franke (center), Martin Schweiss, team leader in the Bihler department (left) and Head of Production Marcus Rieger.**

### Partnership with a future

As the company continues to develop, Saxonia Franke also benefits from their constructive cooperation with Otto Bihler Maschinenfabrik. Martin Schweiss: "The Bihlership support is particularly helpful, for instance when taking new machines into service, and help is available quickly and unbureaucratically." And he and his team could well be making use of this service again soon, when a new Bihler GRM 80E is to be added to the existing machine pool and, as was the case with the most recent new machines, will be replacing two or three older ones. Felix Franke sums up: "We shall continue to exploit existing poten-



[www.saxonia-franke.de](http://www.saxonia-franke.de)

**SAXONIA-FRANKE**

## BIHLER SUPPORT

# ALL-ROUND MACHINE SERVICE



A high level of machine availability and absolute delivery dependability are crucial factors for success in today's market. In order to ensure that all these criteria are met, Bihler is constantly optimizing and developing its services – from the Bihler hotline to the provision of spare parts, right up to the training courses it offers.



Every machine must run without malfunctions and with a minimum of regular maintenance. The name Bihler has always stood for machines that are completely dependable and problem-free in operation. In this context, machine service contracts are of particular value. They play an important role in proactively ensuring that the high technical standards of the machine are upheld. During their regular, on-site service visits, the Bihler specialists identify any incipient faults in good time and avoid potential downtimes, and all of this at a fixed price that is known in advance.

And if a problem should nevertheless arise, the Bihler hotline provides all customers with rapid, unbureaucratic assistance.

#### **Just a phone call away: the Bihler hotline**

The Bihler team is waiting on +49 (0)8368 18/200 on workdays from 7 AM to 7 PM. Since October 2012, new software that records all the activities associated with the case in hand has been in use for telephone support. This means that all information is available at a glance to everybody who is involved so that the customer now gets assistance even more rapidly and efficiently.

#### **Remote maintenance: Assistance at the press of a button**

Remote maintenance is also often a considerable help when tracking down a problem. It provides full ac-

cess to the machines' controllers and all networked components. The customer always has full control over the process, and must first initiate the connection to Bihler. The number of times that problems have been solved successfully using remote maintenance show that every customer should set up access on their own machines. This allows faults to be localized, and usually eliminated without further ado, and helps to prepare visits from engineers so that they can quickly address the problem in hand. Remote maintenance is now available as an add-on for all new and old controllers.

#### **Spare parts in 24 hours**

And if a replacement or one-off part for the machine is suddenly needed,



From the hotline to the dispatch of spare parts: Bihler offers its customers comprehensive, dependable and rapid service.



Bihler make sure that they can be supplied quickly and dependably. In most cases, this can be done within 24 hours anywhere in the world. To meet demand, Bihler keeps a vast number of ready-to-use parts and components in stock, even for old machines. Optimized stock levels, precisely coordinated logistics and shipping and Bihler's status as an approved "known consignor", together with new routines with respect to CCC certification, ensure the shortest possible delivery times and best possible support for the customer, resulting in optimum machine availability.

#### Always up-to-date with upgrades

Technology is constantly moving on, particularly in the fields of elec-

trics and electronics. And so, older machines need to be brought up to date from time to time in order to ensure that spare parts remain available. Bihler upgrades these machines, including any mechanical assemblies, on the basis of state-of-the-art technology. This restores the performance of the machines and the competitiveness of the customer and users profit from the consistent high performance of their Bihler machines.

#### Knowing how: The Bihler training program

And in its training program too, Bihler is focused on the current needs of the market. Important components of the program include

NC training, courses on maintenance and cutting tools or introductions to the bNX technology software. All the courses provide practical training in state-of-the-art technology. This means that customers who take part can always be certain that they will be able to reap benefits in the market with their new-found knowledge. ■



**SCHEUERMANN + HEILIG GMBH,  
SCHNÖRING GMBH AND THE  
M.S.AMBROGIO GROUP**





# OVERCOMING THE CHALLENGES TOGETHER



From left to right:  
Steffen Scheuermann,  
Mario Sangalli, Mathias Bihler,  
Silke Heilig and Axel Schnöring.



Close, purposeful, trust-based cooperation with partners has always been of the utmost importance to Bihler. What is the basis for this collaboration and how does it ensure the long-term success of everyone involved? Axel Schnöring, Managing Director of Schnöring GmbH, Silke Heilig and Steffen Scheuermann of Scheuermann + Heilig GmbH, and Mario Sangalli of the M.S.Ambrogio Group traveled to Halblech to discuss this further with Mathias Bihler. These companies are, respectively, Bihler's oldest customer, its largest customer in Germany and its largest customer worldwide. In a discussion with b.on.top, the visitors look back with Mathias Bihler at the early years of their respective enterprises, sum up the results of their many years of partnership with Bihler and debate future market requirements.

Mario Sangalli, Managing Partner of  
M.S. Ambrogio Group

“Flexible, economical production are becoming increasingly important. Bihler delivers the new ideas and efficient systems technology that can help achieve this.”



**b on top:** You are all heading your companies in their second or third management generation and have known all about your areas of business since you were small. What are the greatest differences between now and the times when your companies were founded?

**Steffen Scheuermann:** The current period is very different from just a few decades ago and the founding fathers of our businesses would naturally be very proud today. However, they would find things very difficult. For example, at the level of customer relations which were much more personal and emotionally-based back then. Or when concluding business agreements, which used to be done by a handshake and now demands reams of papers and documents. The relationship with employees was also a lot more personal. Back then, it wasn't any easier, but it was very different.

**Silke Heilig:** The challenges in those days were also very different. There were often financial questions, but also very often purely technical problems. They were then resolved together without complication in line with the old “let's do it” mentality. Nowadays, to do that you need quality management, experts in legal agreements and any amount of capital. I think that the way our forefathers built up their enterprises would no longer be possible today.

**Axel Schnöring:** And in addition, there are completely new modes of communication now which were inconceivable back then. In those days, the post played a central role and was the way orders were sent and money was transferred. Nowadays, we are contactable practically round-the-clock and everything is handled online. And this speed is also reflected at the level of customer relations: whereas, in the past, people would often work together for decades, nowadays there's a change practically every two or three years, for example in terms of purchasing staff.

**Mathias Bihler:** Enthusiasm for work and the high value placed on personal relationships were also much more prominent than today.



Back then, the important thing was always to get to know your partners personally rather than to enter into an anonymous, purely profit-oriented business relationship. At the same time, the dynamics of today's market is totally different from the situation back in those days. And whereas, in the past, you would often deal with small businesses that were also family-run, the business partners today are often large, globally active groups, sometimes with high levels of personnel turnover. No transactions are concluded with a handshake any more. Instead we have excruciatingly long contractual guidelines. In addition to all this, there is the progress made by technology and the many new possibilities that can be seen, for example, in the field of machine technology with the introduction of NC solutions. Overall, this has resulted in a whole range of new constraints and opportunities that were unimaginable when our companies were first founded.

**Mario Sangalli:** Back then, things were simply slower and more stress-free. All you really needed was a pencil and paper. I can still remember how Otto Bihler used to draw sketches on the tablecloth in the restaurant and then take them back to be worked with. And that is absolutely typical of the approach to work and the perspective that our predecessors had at that time. Your own feelings simply played a much bigger role and a lot was undertaken on instinct. And that was necessary back then because all the analyses, forecasts and trend calculations that we have now didn't exist. Decisions, for example to buy a specific machine or open a new production line, were much more courageous, risky and uncertain. The work of our forefathers deserves respect. However, we can be equally proud of what we have done because we are successfully continuing what they built up.

**b on top: What role has Bihler played so far for your enterprises? What significance does the company have for you?**

**Steffen Scheuermann:** Bihler has played a central role for us from the very start because Bihler's tech-

**Mathias Bihler, Managing Director Otto Bihler Maschinenfabrik**

“We give our customers support and security – through our technology and the expertise, trust and confidence we provide. Together, we will therefore be able to overcome the challenges of the market.”



nology has given us some crucial advantages. The machine concept has opened up completely new production possibilities for us – and at the same time has ensured that we can manufacture economically. One very concrete example, for instance, was the manufacture of housings which was completely new for us at the time. We ordered a GRM 100 together with the corresponding tools and used it to push forward with our own developments. The underlying idea was always to com-

bine as many operations as possible on a single machine.

**Mathias Bihler:** Besides the technology itself, the ongoing exchange of experience and the cooperation between us were crucial for success. By combining our knowledge and innovative strength, we were able to create the conditions necessary in order to market new products competitively. This joint cooperation also helps us assess our own capabilities and objectives better and

▶ **Axel Schnöring, Managing Director Schnöring GmbH**

“Bihler’s NC technology is opening up new lines of business for all of us and ensuring our long-term success.”



choose the right path for future success. This type of cooperation also reflects our feeling of responsibility toward our customers.

**Axel Schnöring:** Collaboration with Bihler has also had a decisive influence on the development of our business activities. Our first contact with Otto Bihler Maschinenfabrik was in the early 1950s when we ordered a wire bending machine. This represented an alternative to performing this operation manu-

ally, which was widespread practice in our company at the time. In the eighties, the growing customer demand for stamped and bended parts persuaded us to expand into this segment. The advantage of Bihler’s systems lay in the fact that they allowed us to run a large number of time-consuming individual operations on a single machine. The assistance provided by Bihler at the time, especially when we had to get to grips with new production tasks, was particularly valuable. There is

a constant exchange between our companies that has helped us enormously in the past – and that still continues today.

**b on top:** You have all already been active in your companies for many years. What was the experience of taking over the reins of management like for you?

**Silke Heilig:** For me, it was a very unconstrained decision that simply emerged by itself. And that was good because it meant I had the necessary freedom of maneuver which is important for a healthy development in this sector. My commercial training and Steffen Scheuermann’s technical training represented a combination which enabled us to continue to run our enterprise successfully.

**Steffen Scheuermann:** Of course, we had both always had a close relationship to the company that formed the basis for our interest in it. But like Silke Heilig, my activity as Managing Director was not predestined. It was more due to the fact that my brother, who had headed the company up to then, moved to Brazil and I took over as Managing Director.

**Axel Schnöring:** For me personally, it was quite easy to imagine from an early age that one day I would run my family’s company myself. It was a free decision that I could make in my own time and with no pressure from my parents. That is why after completing my commercial training, I first spent five months outside of the enterprise working for a US group. In 1998, I then entered the family company and gradually had to make myself familiar with our specific field of business. The experience that I gathered outside of the company benefited me greatly during this period.

**Mathias Bihler:** I started as a tool-maker in my father’s factory before moving to technical sales and was one of the four company directors at the time. However, when my father died suddenly, the situation changed overnight. Fortunately, I was lucky enough to have a good, dynamic team behind me. As a result, I was

gradually able to take on more and more management responsibilities. It takes time to grow into this type of role and you can't do everything right straight away. During this period, the trust and confidence within the company was particularly valuable to me.

**Mario Sangalli:** From the very beginning, I worked in my father's factory and always felt that I was part of the company. After spending several months in the USA, I joined the company in 1998. With time, I got to know the enterprise, its customers and the entire business environment better and better. In 2002, my father suddenly had to stop work in the company for several months due to health reasons and I took over management responsibilities. During that period, I profited most from my stay abroad which had taught me many different ways of seeing and thinking about things.

**b on top: What requirements does stamping and bending technology currently have to face and how can you ensure your success in the future?**

**Mario Sangalli:** Increased flexibility during production operations is set to become ever more important for business success. At the same time, the price of the products is the key criterion for customers. What is important here is to have new ideas and develop innovative technologies for economic production. And that is exactly what Bihler does thanks, in part, to its vast expertise in the field of system construction. Using this technology and adapting it to our own needs means that we can stay competitive.

Just as important, however, are our own employees, our customers and our suppliers.

**Steffen Scheuermann:** Quality and innovation are the cornerstones of future success. However, I also think that the tried-and-trusted concept of close cooperation rather than short-term business relations is also crucial for success. In technical matters especially, it is particularly important to work together closely and intensively in order to develop new solutions.

**Axel Schnöring:** Ever increasing

flexibility in response to constantly growing cost pressures will determine the future of our businesses. In this environment, it is vital to have a strong partner such as Bihler that responds to our requirements and works with us to develop custom solutions. NC technology is a good example of this. It is an innovative technology that is opening up new lines of business and avenues for successful development and will ensure continued success for all of us for years, if not for decades, to come.

**Mathias Bihler:** The task today is to try to identify the market requirements of tomorrow. What are the needs of the supply industry, which constitutes our largest customer base? Current market requirements demand systems that permit smaller production runs, large volumes or short setup times and will allow suppliers to meet the needs of their customers. Our task is to provide support and security to the customers that want to make this journey with us – through our technology as



**Silke Heilig, Managing Directors of Scheuermann + Heilig GmbH**

“Bihler’s technology offers us decisive advantages in the use of new manufacturing capabilities and also ensures economic production.”







► well as through the expertise, trust and confidence we bring with us. We continue to help until full functionality has been achieved. However, when it comes to future tasks, for example when productivity increases are required, our customers will

be able to continue to count on our support. Together, we will therefore be able to overcome the challenges of the market. Ultimately, the important thing is to have satisfied customers. That is the best guarantor of being involved in their future

tasks and projects. And shared success is, when all is said and done, the best motivation for the future. ■

## SCHNÖRING GMBH

Schnöring GmbH, which is based in Schalksmühle, was founded in 1926 and is currently managed by Axel Schnöring, the third generation of the family to do so. Its business activities include the production of springs, stamped and bended parts, and assemblies. The first Bihler machine for bended wire parts was commissioned in 1957.

## M.S.AMBROGIO GROUP

With over 800 employees and seven sites in Europe and South America, the M.S.Ambrogio Group, which is headquartered in Cisano Bergamasco in Italy, is a leading manufacturer of assemblies, electronics components, stamped and bended parts, and springs. Cooperation with Otto Bihler Maschinenfabrik dates back to 1960.

## SCHEUERMANN+HEILIG GMBH

Scheuermann + Heilig GmbH was founded in 1957 and manufactures stamped parts, stamped/bended parts, springs and assembly components at its sites in Buchen-Hainstadt and Atibaia (Brazil). Its partnership with Otto Bihler Maschinenfabrik goes back to 1958.

## MEN, MACHINES, MILESTONES

# 60 YEARS OF BIHLER – A SUCCESS STORY

To push the boundaries of what technology can do and revolutionize the market with genuine innovations – for 60 years, that has been the secret behind the success of the company Otto Bihler Maschinenfabrik. The focus is always placed on the practical benefits to users in the form of maximized value-added during production. This applied just as much to the very first radial bending machine from the company's early years as to today's forward-looking innovations, the GRM-NC production system or the BIMERIC NC production and assembly system.



From one-man business to the world's leading system supplier: Otto Bihler (left) and the current management team with Manfred Grundner, Martin Niklas, Mathias Bihler, Bernd Haußmann and Ludwig Mayer (from left to right).

Success through innovation – this motto applies more completely to Otto Bihler Maschinenfabrik than it does to almost any other enterprise in the metalworking industry. This is because the company founded by Otto Bihler back in 1953 has become the world's leading supplier of forming, welding and assembly technology. It is setting new standards in the world of stamping and bending – today just as much as in its early years when Otto Bihler's ground-breaking innovations, such as the UFA 1 spring winding machine and the RM 25, the world's first radial wire and strip bending machine, revolutionized the metalworking world.

## Going beyond the established, overcoming limits

These innovations laid the cornerstone for the long-term success of Otto Bihler Maschinenfabrik. "Those were

difficult times for the small craft business because it took a lot of effort, skill and commitment to go beyond the boundaries of what was technically feasible at the time and turn the dream into a reality," recounts Mathias Bihler. "And even today, hard work, know-how and continuous further development are still the most important qualities behind our new solutions in the machine and equipment sectors as well as in the field of process technology." These include, for example, the GRM-NC production system and the BIMERIC NC production and assembly system. Thanks to their versatility and economic production capabilities, these two systems represent the optimum response to rising energy and raw materials costs, increasingly intense competition on the global market, and the growing demand for fast, flexible manufacturing solutions.

## The focus: Maximum benefit for the customer

In the future, Otto Bihler Maschinenfabrik will place the emphasis on greater efficiency during manufacture and maximized value-added during production. "The focal point of our new technologies, procedures and machines lies in bringing genuine benefits to customers and enabling them to boost their production in the long term," explains Mathias Bihler. "This allows our customers to secure their long-term success which, in turn, guarantees our own future." ■



## NEW OCCUPATIONAL TRAINING

# STAMPING AND FORMING ENGINEER



**A new professional qualification is emerging: Stamping and Forming Engineer. It has been designed to respond to the latest generation of stamping and forming systems and will help boost machine productivity.**

As of 1st August 2013, there has been a new, State-recognized occupational training course in accordance with the German Vocational Training Act – in the form of training as Stamping and Forming Engineer. In close cooperation with the KIST Competence and Innovation Center for Stamping Technology, Bihler has helped to establish this occupation as a recognized profession, for example by providing training documentation. The tasks of a Stamping and Forming Engineer include setting up and commissioning complex production stamping and forming systems, supervising all the production sequences and

providing specialist support as required. They also cover inspections, identifying and documenting malfunctions and performing quality assurance using software and measurement equipment. Another key area consists of manufacturing and assembling complex, hybrid metal and plastic components.

#### Training for the whole of industry

Stamping and Forming Engineers work at series production lines both in industry and in the service companies that provide the necessary support for production operations. In the vast majority of cases, they

are active in the automotive and mechanical engineering sectors, in the field of renewable energies, or in the medical, electronics, aviation, aerospace and telecommunications industries. The three-year training course is designed to respond to the increased use of new generations of stamping and forming systems and the resulting growth in demand for the corresponding qualifications. It will also ensure the long-term availability of appropriately qualified specialists. You can find further information on the new occupational training in the relevant specialist training departments of the local Chambers of Trade and Industry. ■



## NEW BOOK

# THEORY AND PRACTICE OF STAMPING AND BENDING TECHNOLOGY



How is a stamping and bending machine constructed? What are the difference between the radial and linear manufacturing concepts? Answers to these and many other questions can be found in the new volume "Stanzbiegetechnik – Effiziente Fertigung von Stanzbiegeteilen und kompletten Baugruppen" (Stamping and bending technology – The efficient manufacture of stamped and bended parts and complete assemblies) published as part of Süddeutscher Verlag's BIBLIOTHEK DER TECHNIK series. The work provides a comprehensive, highly practical insight into the world of stamping and bending technology and illustrates the importance of this fascinating technology in today's world.

## Straight off the press to the BihlerTEC Company Exhibition

After a brief outline of technological development, the authors, Christoph

Schäfer and Vinzenz Hörmann, examine a number of case studies to explain the implementation of a range of interesting production solutions. In doing so, they describe the underlying structure of a stamping and bending machine, its components, cutting and bending tools, as well as the radial and linear tool concepts implemented on these machines. Other topics include the additional processes that can be integrated, such as contact welding or tapping and screw insertion, the design software, and the control, regulation and measurement technology. This detailed presentation of the world of stamping and bending technology is rounded off with a look at its future development. This new book will be available for the first time at the BihlerTEC Company Exhibition that will take place from 8th to 11th October 2013 in Halblech. ■

## NEW "CUTTING TOOLS" SEMINAR

## INCREASING PRODUCTION EFFICIENCY

At the new, two-day "Cutting Tools" seminar, users of stamping and bending technology will discover all they need to know about choosing materials as well as about the production technologies employed for cutting and bending tools.

### Theory and practice in a single seminar

The first day of the seminar provides a valuable insight into the fundamentals of stamping, bending and forming technology. The second day is devoted to practical considerations (choice of material and its machining) based on the customer tool that attendees are asked to bring with them.



The main aim of the seminar is to increase production efficiency by analyzing and eliminating planning, design and tool problems as well as by achieving the shortest possible tool setup and adjustment times. The number of participants

is limited to four people per seminar. Dates can be fixed individually by agreement. All the information about the seminar, as well as the enrollment form, can be found in the seminar calendar available under Support at [www.bihler.de](http://www.bihler.de). ■

## B ON TOP HIKING TIP

# THE SPLENDOR OF THE HOCHPLATTE

A visit to Otto Bihler Maschinenfabrik in Halblech offers an ideal opportunity to take time out for a hike in the mountains. The Ammergau Alps are eminently suitable, thanks to unspoiled nature, good paths and easily accessible peaks. A whole-day tour that is both beautiful and varied takes you to the 2082-meter summit of the Hochplatte. This exposed, rocky peak offers an impressive panorama over the surrounding mountains and the Alpine foothills.



Enjoy the peace and quiet, take time out from your workaday routine and take an unforgettable hike in the mountains surrounded by fantastic landscapes. Easily accessed, the Ammergau Alps provide an ideal opportunity with their relatively short ascents. They are a conservation area which is only sparsely populated and, being so secluded, they have become something of an insider tip in the walk-

ing community. One of the really enjoyable whole-day walks takes you to the 2082-meter high Hochplatte, one of the highest summits in the Ammergau Alps. The exposed location of the prominent limestone slab that dominates the surroundings offers an impressive panorama over the surrounding mountains and the Alpine foothills. The climb itself takes around five hours and has plenty of variety to offer. The starting point is the Kenzenhütte,

which can easily be reached by bus from Halblech. This hut gives you the opportunity to take on some sustenance before setting off for your first objective, the Kenzensattel col, which you will reach in around 45 minutes. The path from the grassy col takes you between the north face of the Hochplatte and the bands of rock of the Kenzenkopf and downwards for a short distance. But you only drop a few meters before the path leads you straight



into the cirque between the Hochplatte and the Gumpenkarspitze.

### Through the window to the summit

Here, as if strewn there by giants, you will encounter a labyrinthine maze of massive boulders, the result of a huge rockfall. From the cirque, you can already see the “Fensterl”, or window, which tunnels through the ridge between the Krähe and the Hochplatte. This is your next destination on the climb, and this stretch clearly shows the huge limestone slabs that make up the Hochplatte and give it its name. After a short break, you pass straight through the window and on to the summit a short distance further on. The path takes you northeast over a steep arête, straight up to the cross that crowns the summit. A spectacular panorama across the Kenzenkopf in the foreground, the foothills of the mountains to the east and west and out over the plain beyond more than compensate for the three-hour climb.

### Down the ridge to the Weitalpjoch

The summit of the Hochplatte is an ideal spot to rest and gather your strength for the descent. This leads you down over limestone bands and mountain pine to the small valley that is the Gamsangerl. If you are lucky, you may catch a glimpse of the chamois that give the place its name. This marks the beginning of the route along a breathtaking ridge that is secured with wire ropes at some of the more challenging rock scrambles. But this is just a short stretch, and after leaving the ridge to the southeast, the path becomes

wider and takes you down to the Weitalpjoch. Passing the 1806-meter Schlössl, you carry on towards the Lösertalkopf. At this point, the path swings round to the west and winds back to our starting point, the Kenzenhütte. The food and drinks served by your three hosts at the hut will taste all the better for being hard earned. And before long, you will be enveloped by a mellow feeling of satisfaction and be glad that you decided to set off on this fascinating climb in the majestic landscape of the Ammergau Alps. ■



Just below the summit, the path leads through the “Fensterl”, a natural window in the rock. The route to the Hochplatte starts and ends at the Kenzenhütte (bottom).

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