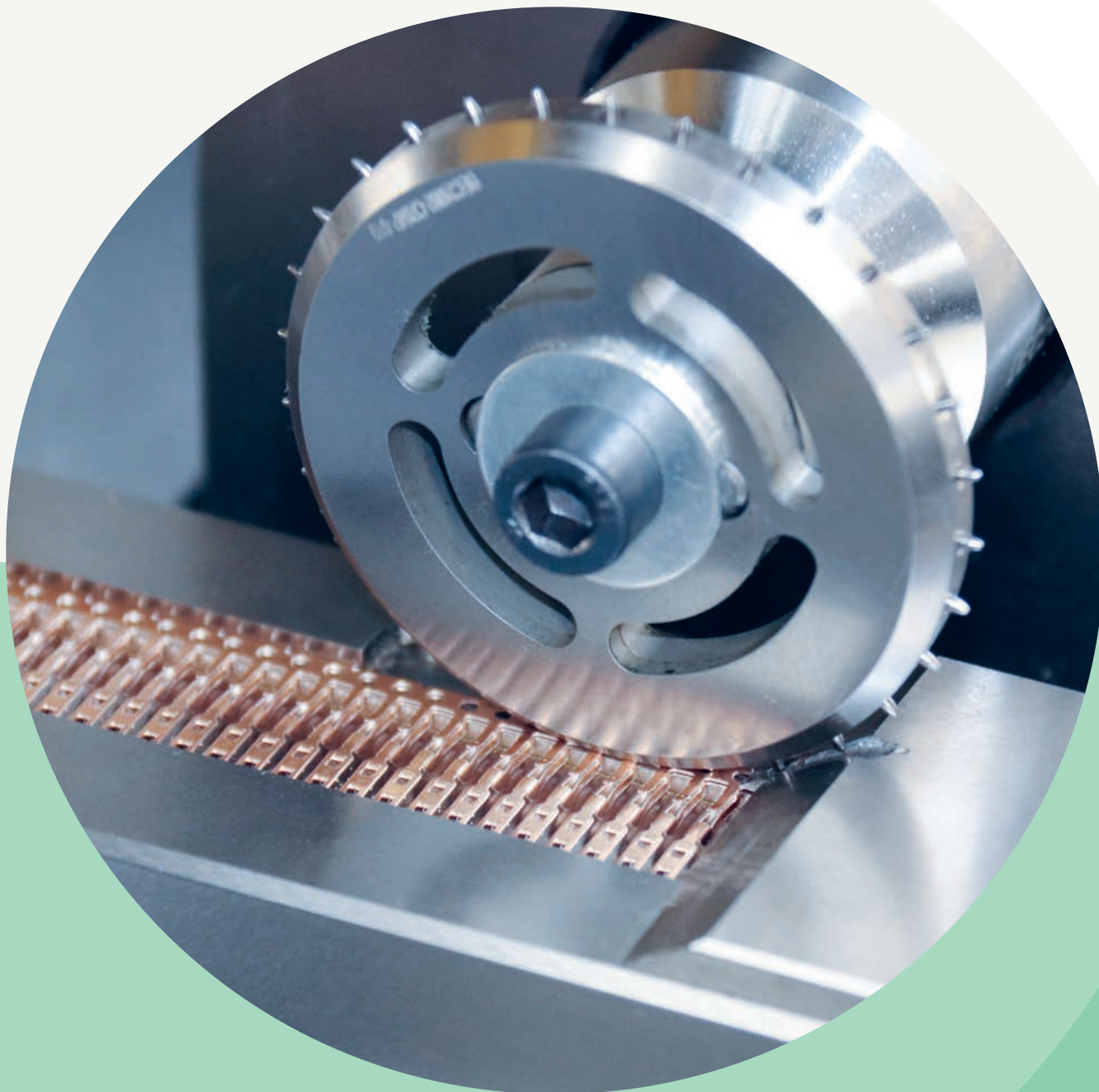


stamper

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The magazine for high-performance
stamping technology

BRUDERER



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18–**RESEARCH** Strengthening our technological edge in collaboration with universities

NEW

**BSTL
610-150**

**For demanding
applications in the AI and
electronics industries**

The BRUDERER BSTL 610-150 is a high-performance fixed-stroke stamping press, designed for the cost-effective and high-precision series production of stamped parts.

- up to 850 strokes per min.
- high availability
- low set-up effort
- energy-efficient fixed-stroke technology
- B3 control with intuitive operation



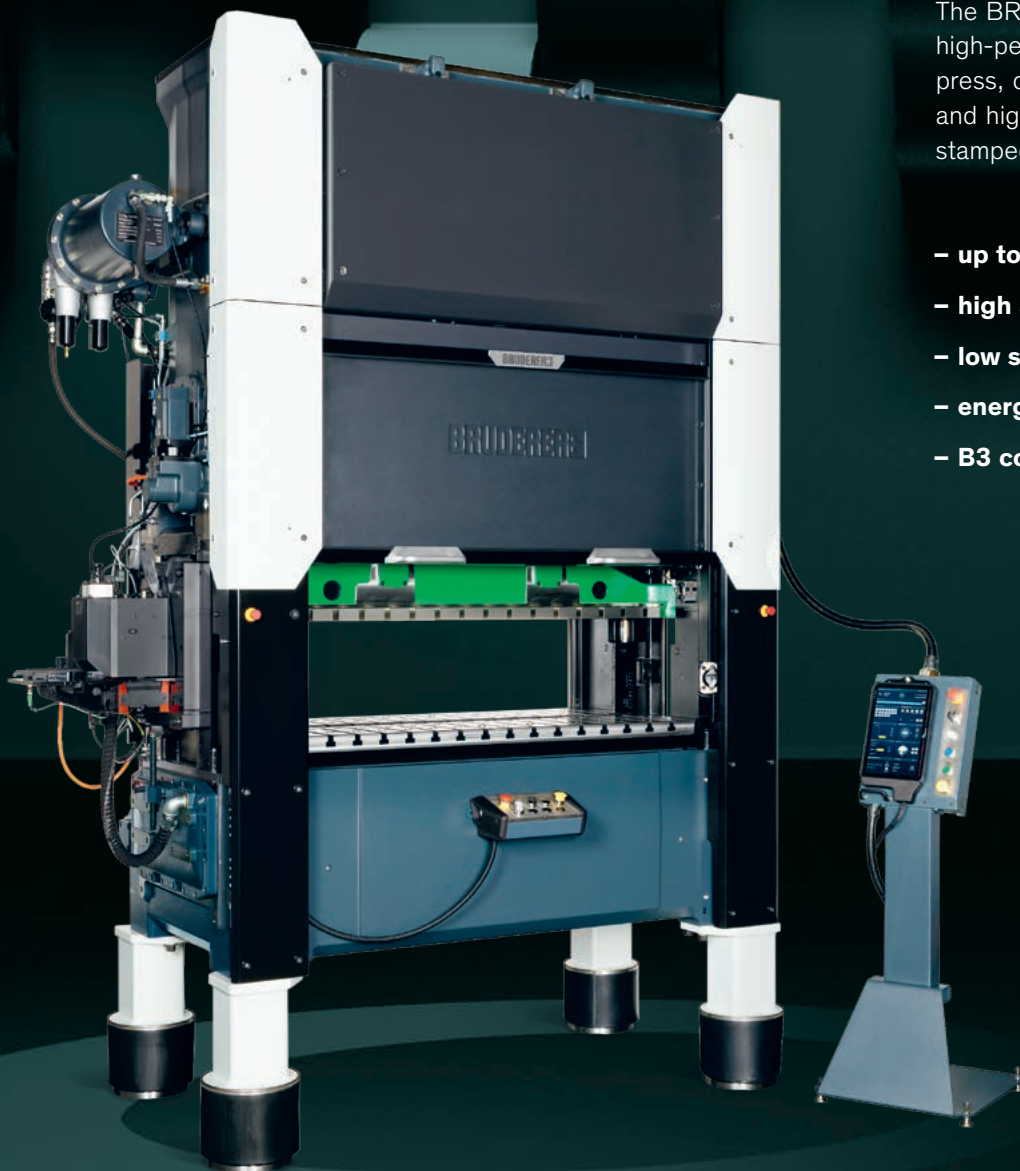
**Tool loading
area**
1500 mm



Stroke speed
min. 100 spm
max. 850spm



Nominal force
610 kN



EDITORIAL



Dear reader

Markets are moving faster than ever before. Technological developments, intense competition and global changes present manufacturing companies with a constant stream of new challenges. To meet these requirements in the long term, it is not just high-performance machines that are needed, but comprehensive solutions that help companies remain competitive. BRUDERER sees itself as a reliable system partner and supports our customers with integrated solutions for cost-effective and process-reliable stamping.

In this issue of STAMPER, we demonstrate how we support our customers on his journey. The stories from Nicomatic SA, VE-CA S.r.l. and Fritz Stepper GmbH & Co. KG illustrate how close dialogue and partnership-based collaboration give rise to solutions – precisely tailored to specific applications and delivering tangible added value.

We also present our brand-new BSTL 610-150 high-performance stamping press, which is designed to meet the requirements of the electronics, computing and AI industries. This issue also highlights what else drives BRUDERER: from our collaboration with the University of Stuttgart and our new control system retrofit to personal encounters and discussions at trade fairs.

I hope you find this an inspiring read, and look forward to continuing to support you as a trusted partner in the future.

Reto Bruderer
CEO BRUDERER AG

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CASE STUDY



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Nicomatic SA

Optimised manufacturing processes for maximum precision and greater efficiency

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Fritz Stepper GmbH & Co. KG, Pforzheim, Germany

What's new in stamping technology

In-line welding, monitoring and assembling plastic components

Two breakthroughs in tool technology by Fritz Stepper, based in Pforzheim, Germany, demonstrate how high-precision stamped parts can be efficiently and economically produced from multiple components. The Pforzheim-based company has traditionally turned to BRUDERER high performance precision stamping presses for this type of work. These two family-owned businesses have worked in partnership for more than five decades.

Michael Stepper, owner and CEO of Fritz Stepper GmbH & Co. KG pointing out the hard-coated edge of a tool element under a microscope. The active components which are subject to wear are given a coating which is three to four times harder than usual, with hardnesses up to 6,000 HV.



Tool assemblies which can be used to stamp, weld and assemble finished parts from multiple components in one process offer a range of production-related and economic benefits. In-line manufacturing provides greater work-piece accuracy and higher manufacturing speeds. In addition to this, transportation and intermediate storage of components are no longer required – as are assembly machines. Furthermore, less machine downtime for set-up processes means greater overall equipment effectiveness.

Michael Stepper, owner and CEO of Fritz Stepper GmbH & Co. KG, explains that all the processing steps are carried out on the BRUDERER machine. This eliminates the need for the less precise but very expensive assembly machines.

Go-to solution provider – anywhere in the world

Founded by his father, Fritz Stepper, the company is at the cutting edge of innovation for stamping tools across the globe. In the mid-1960s, the company developed a modular system which is now the standard in toolmaking: it consists of specific stages for punching, bending, coining and welding which can be swapped out in sec-

Stamping breakthroughs at Stepper

The Pforzheim-based toolmaker Fritz Stepper presents two innovations for tool assemblies for stamping, welding and assembly on BRUDERER high performance stamping presses. Existing camera-based, 100% inspection of finished parts is supplemented by a second, simultaneous inspection using sensor-based weld monitoring which is an integral part of the process. Stepper also uses an automotive plug-in connector made from three pieces to demonstrate that not only all-metal parts, but also combinations with injection moulded components can now be processed in-line.

onds. In 1981, Stepper was the first tool-making business in Germany to introduce CAD programs and, a few years later, it took the next technological step by adding FEM analysis of all tools.

Stepper has been one of the go-to solution providers across the globe for combination tools for high-precision bulk components for around 25 years, at times, comprising 5,000 individual components. Up to 150 stations execute many different manufacturing steps – from stamping, through welding, to assembly.



Two new breakthroughs for tool assemblies

The multi-award-winning toolmaker is taking its technology to the next level with two brand new innovations. The first of these was to supplement the existing camera-based, 100 % inspection of finished parts with the introduction of a second, simultaneous inspection using sensor-based weld monitoring which is an integral part of the process. Stepper uses sensors to capture and measure reflections from the weld seams.

The second breakthrough concerns tool assemblies for stamping, welding and assembling: for the first time, in-line processing is now possible not only for all-metal components, but also when injection-moulded components are included.

Stepper has optimised fibre laser technology for use in the tool and can spot and seam weld a range of different materials.

In-tool weld seam inspection on the tool

Stepper has offered welding directly in the stamping tool for over 35 years. Today, this is carried out using fibre laser sources. They are easy to maintain, require very little cooling, and provide continuously robust performance. Software, controls, process monitoring, and the interface to the B2 and B3 controls on BRUDERER stamping presses are all developed in-house.

Single focal, bi-focal or galvo laser heads are used depending on the geometry of the parts and switching between seam and spot welding is at the touch of a button.



“A BRUDERER stamping press can only achieve its full capacity if it has the appropriate Stepper tool. Both components are amazingly reliable and are the ideal basis for stamping precision volume parts of the highest quality.”

Michael Stepper, owner and CEO of Fritz Stepper GmbH & Co. KG



Tool with the fibre welding technology and monitoring using sensors as an integral part of the process developed by Stepper. According to Daniel Ast, Chief Innovation Manager at Stepper, when the tools are used with BRUDERER automatic stamping presses, they are at least as reliable as resistance welding. “This means costs are noticeably lower and achievable stroke speeds significantly higher.”

Using sensors takes monitoring to a new level: they inspect the welds in the two to eight milliseconds needed to complete a single welding process. Defective parts are therefore identified earlier and fewer reject parts are produced. The process was developed with scientific support.

“Connecting the fibre laser technology we developed in-house with the new sensor-based, process-integrated monitoring is currently unique,” explains Daniel Ast, Chief Innovation Manager at Stepper. According to him, when using these tools on the Swiss machines, fibre welding is at least as reliable as the considerably slower resistance welding on other systems which is also more expensive to maintain. “This means costs are noticeably lower and achievable stroke speeds significantly higher.”

The laser modules can be integrated into all three tool types offered by Stepper: PROTO for production-quality prototypes, MODULAR 1 for small to medium batches, and F1 Supertec for large-scale production of up to 10 million pieces.

Non-ferrous metals can be processed on these machines as well as difficult to punch steels with tensile strengths up to 2,000 Mpa. Tool lengths of up to 1,500 millimetres are possible, as well as strip widths up to 100 millimetres, and strip thicknesses from 0.02 to 2.5 millimetres.

Injection moulding in the stamping line: debut plug-in connector for the automotive sector
Stepper has been producing tools for assembling all-metal parts since 1988. Plastic parts can now be included in this process. The stamping experts originally received an order for a tool that could produce a plug-in connector for the automotive sector made of three components, one of which was an injection-moulded part.

Two different metal components are punched from two coils and each is welded at two points. A plastic part is inserted into one of these and the two subassemblies are then “married up” and welded together at five points. Following the sample production run May 2026, volume production will commence in the second half of the year.

Why these innovations are running on BRUDERER stamping presses

Bernd Rexroth, Technical Director at Stepper, sees the company’s USP as “tool assemblies for stamping, welding and assembling high-precision volume components – as well as simultaneous processing of multiple strips. The welding technology developed by us, and using our tools in the unique BRUDERER stamping presses allows us to achieve extremely high quality.”



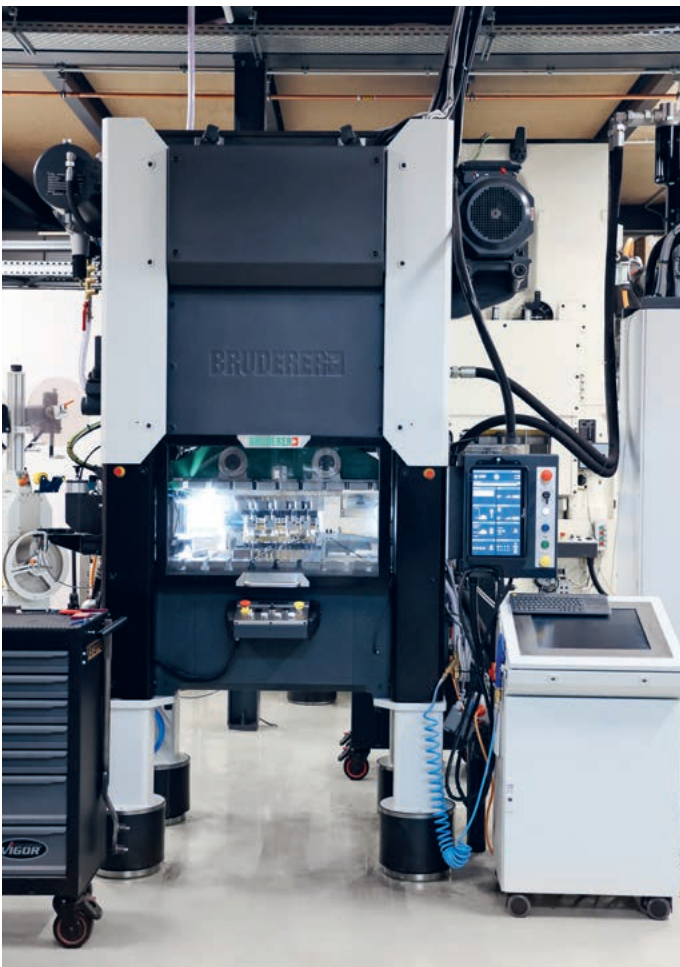
At Blechexpo, Stepper presented integral sensor-based weld monitoring in a BRUDERER BSTA-200/70 stamping press.

There are currently a total of 43 of these systems in use. Michael Stepper's father, Fritz, bought the first BRUDERER stamping presses back in 1965 as he wanted to test his tools himself prior to delivery. Above all, when the BSTA 25 came out, a new product that made headlines at the time with its revolutionary mass balancing that was later patented, there was only one thing that mattered: this technology!

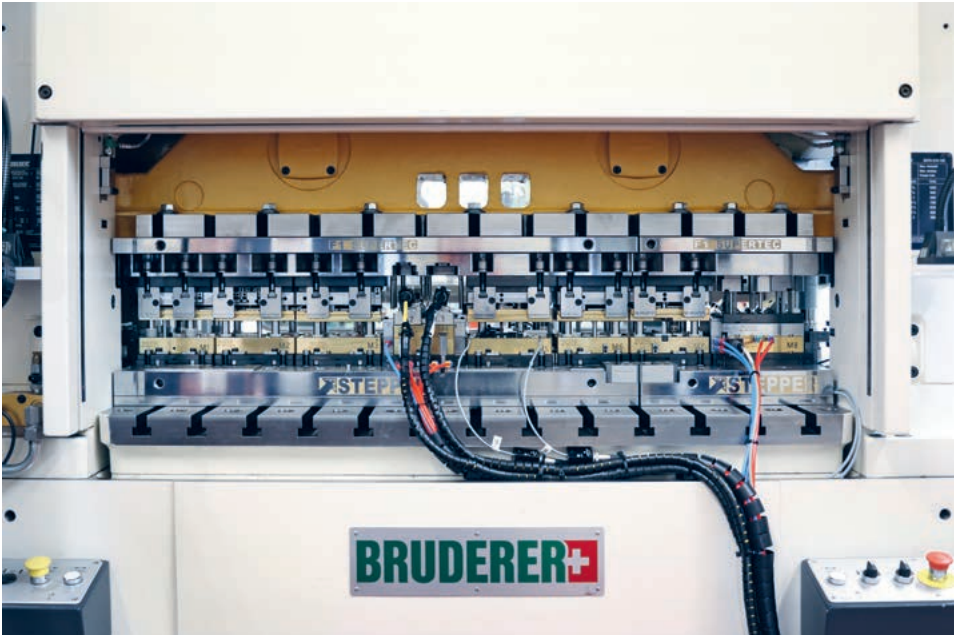
Michael Stepper is still full of praise for these systems to this day: "A BRUDERER stamping press can only achieve its full capacity if it has the appropriate Stepper tool. This successful combination has been produced thousands of times over the past 50 years. Both components are amazingly reliable and are the ideal basis for stamping precision volume parts of the highest quality."

Extensive vertical integration

One of Stepper's key strengths is its highly extensive vertical integration. It is a truly one-stop company – from the raw material, via complete machining with profile and coordinate grinding, to the company's own hard coating using recipes developed by Stepper in-house. The active components which are subject to wear are given a coating that is three to four times harder than usual, with hardnesses up to 6,000 HV. The company's in-house metrology even includes a CT scanner, which is used to inspect 20-millimetre-long connectors at 1,000 measurement points.



Stepper has 43 BRUDERER high performance stamping presses in operation. One of the newest is a BSTL 350-88 with a fixed stroke and a B3 machine control system.



Tool assembly for integral welding and measuring as part of the process, consisting of eight modules. It produces three spot welds in the centre and four around the end and is used on a BRUDERER BSTA 510-125 stamping press with 400 to 500 strokes per minute. Design phase to the first stroke took about five months.



(Left to right) Michael Stepper, owner and CEO of Stepper, Karin Aichem, BRUDERER Marketing and Communications, Ronald Baiker, BRUDERER Area Sales Manager, Bernd Rexroth, Technical Director, Stepper, Daniel Ast, Chief Innovation Manager, Stepper.

According to Michael Stepper, the tool service life has reached record levels: "A tool for tin bronze successfully completed 100 million strokes between two maintenance cycles – with three components per stroke, that's 300 million pieces."

Joint international success

Between five and ten billion components leave the Stepper stamping shop every year contributing around 65% of the company's turnover for its 200 employees. The division has performed well despite the generally challenging market conditions and is seeing an increase in orders. Company director Michael Stepper is exceptionally pleased with new tool production: "This division is also doing extremely well thanks to our innovations!"

Customers come from every sector where precision components are required: from automotive suppliers to communications technology and the watchmaking industry. They have sites all over the world. BRUDERER has also contributed to this by recommending Stepper to its international clients as a tool supplier.

And the opposite is also true according to Michael Stepper: "We always recommend the best technical solution to our customers, and that includes for stamping presses. The final decision is always the customer's and, in most cases, they choose BRUDERER." ■

PROFILE



Fritz Stepper GmbH & Co. KG was founded in 1965 in Pforzheim, Germany, and is now considered to be one of the leading international manufacturers of high-precision stamping tools. The company gained fame through producing the first stamping tool in the world with a modular construction. Today, it is at the cutting edge of technology for tool assemblies for stamping, welding and assembly. In addition to this, several billion parts leave the plant's stamping shop every year, most of which are destined for automotive suppliers, the communications industry or medical devices.

The company has 200 employees and operates under the slogan "Stepper – only the best will do." Stepper has received numerous awards for its innovation and quality, including "Toolmaker of the Year" in the "Excellence in Production" competition on many occasions.

The family-owned business is run by owner and CEO Michael Stepper.

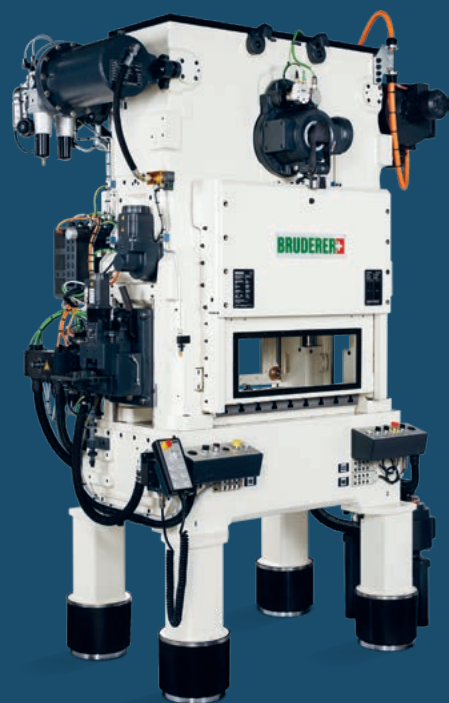


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Nicomatic SA, Bons-En-Chablais

When effective collaboration delivers measurable results

For 50 years, Nicomatic SA has been synonymous with highly reliable connection solutions that perform even under the most demanding conditions. To meet increasingly stringent market requirements, the company has relied on two BRUDERER high-performance automatic stamping presses for several years. The decision followed extensive joint testing and the optimisation of Nicomatic SA's manufacturing processes.



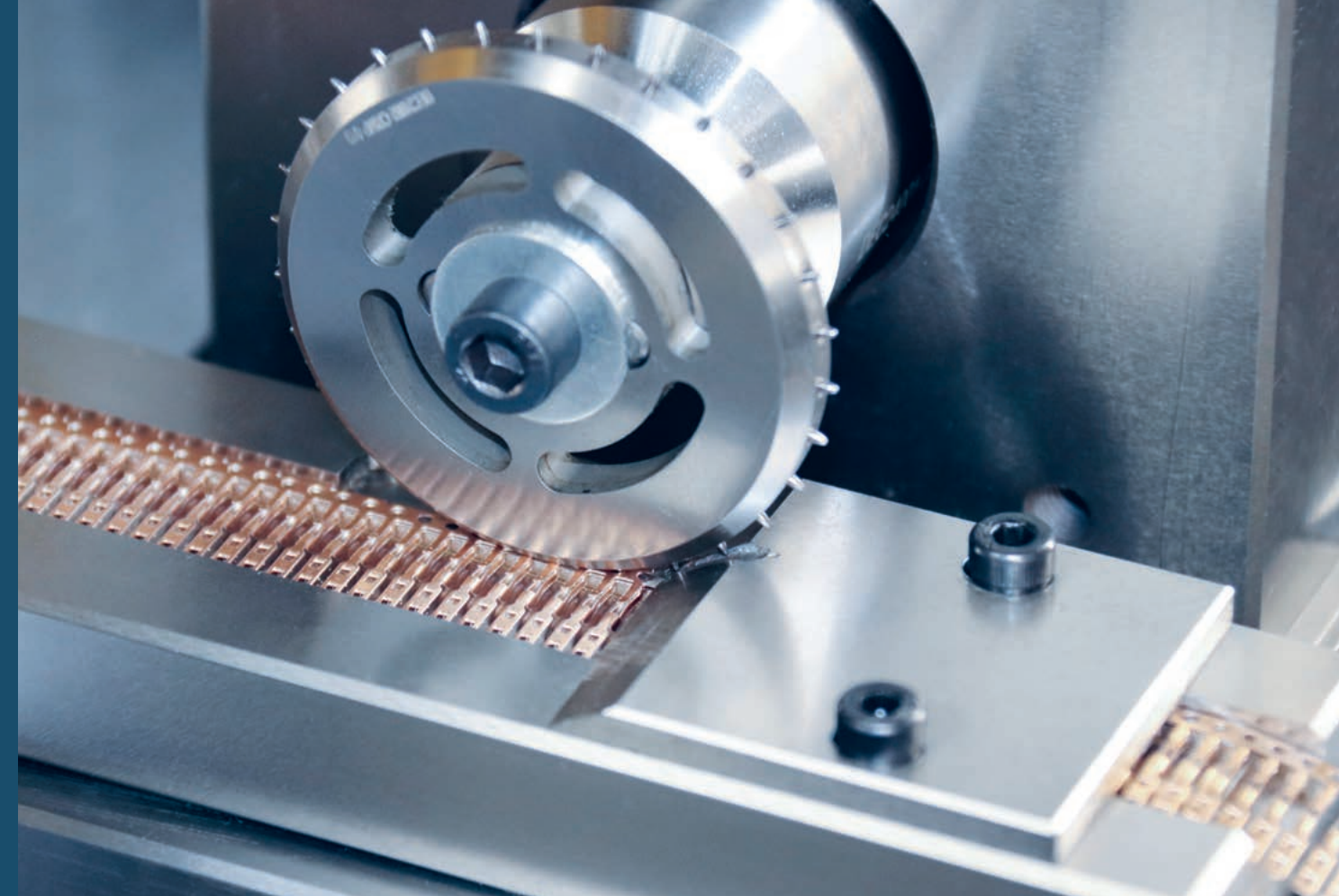
In response to the increasing miniaturisation of components and rising quality demands, Nicomatic SA relies on two BRUDERER BSTA 280-88 B2 high-performance automatic stamping presses.

Wherever signals and data must be transmitted reliably under extreme conditions, Nicomatic SA's products are in demand worldwide. Founded in 1976 and headquartered in France, the company develops and manufactures microconnectors, assemblies and integrated solutions for sectors including aerospace, defence, medical technology, the drone industry and the rail sector. Today, the group employs more than 1,000 people across around 30 locations in 24 countries, yet it has remained true to its roots as a family-run business.

High standards firmly established

Nicomatic SA is led by Julien and Olivier Nicollin, sons of the company's founder, Paul Nicollin. Building on the company's founding principles, they continue to adapt to changing market requirements, offering customers not just individual products but complete solutions. "Alongside quality, our ability to respond quickly to individual customer requirements is crucial," explains Simon Gandais, Head of Communications. Customers also value the flexibility to place orders without minimum quantities.

A passion for innovation is deeply embedded in the company's culture. Nicomatic SA closely monitors technological developments, works with education and research partners, and actively encourages



Working in close partnership, BRUDERER and Nicomatic SA developed a solution in which every machine component was precisely matched to the customer's production processes.

new ideas from within its own organisation. "Components originally developed for a very specific application often become part of our standard product portfolio later on," says Gandais. Flat hierarchies, mutual trust and short decision-making processes are central to this culture.

Excellence in every detail

As a specialist in highly reliable connection solutions, Nicomatic SA demands precision down to the smallest detail. The addition of two BRUDERER BSTA presses has further enhanced process reliability, productivity and manufacturing quality, while opening up new possibilities for producing increasingly demanding components.

Why Nicomatic SA relies on BRUDERER

Nicomatic SA is acutely aware that, as components become increasingly miniaturised, the demands placed on manufacturing are also rising. Thinner strip materials, finer geometries and tighter tolerances require production equipment capable of delivering both exceptional precision and consistently repeatable results under high loads. The company operates four stamping presses in its stamping shop, including two BRUDERER BSTA 280-88 B2 with servo feed and servo axis, installed in 2024. They process bronze, brass and stainless steel in very fine material thicknesses, some as thin as 0.06 millimetres. These stamping presses cover a range from 25 to 60 tonnes of press force and achieve between 200 to 1,100 strokes per minute.

The decision in favour of BRUDERER was based on more than impressive machine specifications. Equally important was the close cooperation in developing a solution tailored to Nicomatic SA's specific production requirements. "Initially, we

were impressed both by the quality of the machines and the technical discussions,” recalls Benoit Minost, Tooling Engineer at Nicomatic SA. “This was followed by a decisive second phase, during which tests with our own tools on the BRUDERER high-performance automatic stamping press fully confirmed our expectations.”

Working together to optimise the process
Introducing the new technology presented a number of challenges. The servo axis, servo feed, synchronisation, tool behaviour, strip guidance and monitoring systems all had to be precisely coordinated. BRUDERER’s process and application engineers therefore worked closely with the Nicomatic SA team throughout the project. This close cooperation was complemented by on-site training and more technical fine-tuning, ensuring not only the successful installation of the new equipment, but also its seamless integration into day-to-day production.

For everyone involved, this collaborative approach proved to be a decisive factor in the project’s success. “Mechanical engineering today is becoming less about supplying a standard machine,” explains Gérard Kirsch, who supports Nicomatic SA on behalf of BRUDERER. “It is about understanding production processes together and



“Strip feed monitoring and the additional monitoring functions at the press outlet significantly enhance process reliability.”

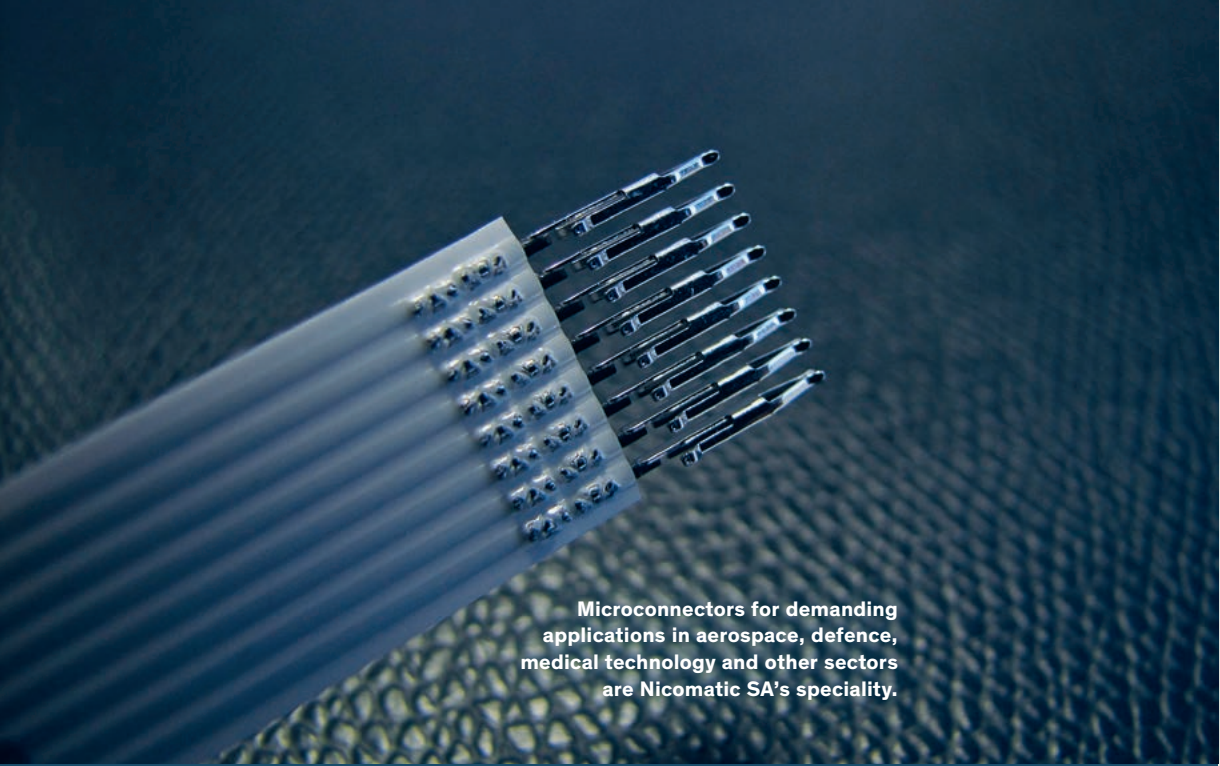
Benoit Minost, Tooling Engineer at Nicomatic SA

configuring machines to meet each customer’s specific operational requirements.” Nicomatic SA embraced this approach with great openness and commitment.

Greater precision, enhanced reliability, higher productivity
The benefits are now clearly visible in production. Thanks to the outstanding precision and repeatability of the BRUDERER presses, together with the precisely coordinated interaction between the BSA servo axis and the BSV servo feed, Nicomatic SA has further advanced the production of extremely small components while improving both product quality and process



Nicomatic SA’s headquarters in Bons-en-Chablais is one of several production sites where connection solutions are manufactured for customers worldwide.



Microconnectors for demanding applications in aerospace, defence, medical technology and other sectors are Nicomatic SA’s speciality.

reliability. “Monitoring the strip feed and the additional monitoring functions at the press outlet significantly enhance process reliability,” confirms Benoit Minost.

The investment has also delivered measurable economic benefits. Depending on the application, Nicomatic SA reports productivity gains of up to 30%. At the same time, entirely new component designs have become viable – parts that would previously have been difficult or impossible to make on a stamping press. Today, the BRUDERER stamping line produces pins from the CMM series, CRIMPFLEX contacts for ribbon cables and switch domes for human-machine interfaces, all designed for use in particularly harsh environments.

Well positioned for tomorrow’s requirements
For Nicomatic SA, the focus is firmly on the future. The company expects the trend towards ever smaller, more powerful and increasingly reliable components to continue, placing ever greater demands on manufacturing precision, process reliability and operational stability. This is precisely where Nicomatic SA sees the greatest potential in its BRUDERER high-performance automatic stamping presses. “BRUDERER’s technology enables us to meet these increasing demands while maintaining high productivity,” says Simon Gandais. ■

PROFILE



Nicomatic SA develops and manufactures microconnectors, assemblies, embedded electronics and integrated solutions for demanding, mission-critical applications. Alongside a comprehensive standard product portfolio, the company also offers a wide range of customised solutions and related services.

Founded in 1976, the family-owned company is headquartered in France and supplies customers in sectors including aerospace, defence, medical technology, drones, rail and other industries with stringent quality requirements.



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BSTL 610-150

A new dimension in ultimate performance

NEW

For demanding applications in the AI and electronics industries



With the new BSTL 610-150, BRUDERER is expanding its cost-optimised BSTL series with another high-performance, fixed-stroke automatic stamping press. Developed for cost-effective, high-precision, high-volume production, the new model is designed specifically for demanding applications in the AI and electronics industries. High machine availability, short changeover times and the new B3 control system combine to deliver efficient, energy-saving and highly reliable production.

AI data centres, electronic components and increasingly miniaturised precision parts are placing ever greater demands on industrial series production. Manufacturers need stamping solutions capable of producing large volumes with consistent precision, outstanding process reliability and low energy consumption. The BSTL 610-150 has been designed to meet exactly these requirements. Building on the success of the BSTL 350-88, introduced in 2023, the new stamping press extends the BSTL range with a larger, more powerful model. “The BSTL 610-150 was developed specifically for the cost-effective series production of complex stamped parts for the AI and electronics industries,” says Laszlo Jud, Vice President Technology at BRUDERER. “Typical applications include connectors and contacts, backplane connectors and parts for cooling solutions for modern hyperscale data centres.”

Higher output, lower energy consumption

The BSTL 610-150 combines high productivity with the efficiency of fixed-stroke technology. Depending on the configuration, it delivers up to 850 strokes per minute and processes strip material up to 340 mm wide. At the same time, its energy-efficient 15 kW drive significantly reduces power consumption compared with conventional solutions. With a nominal press force of 610 kN, the press is well suited to long stamping tools and demanding applications. Minimal changeover times and the high availability synonymous with BRUDERER help maximise productivity while keeping production costs under control.

Intuitive operation with the B3 control system

The BSTL 610-150 is equipped with the new B3 control system. A modern touchscreen interface provides intuitive access to all machine and peripheral functions. “The clear tile-based display allows operators to identify machine and process parameters quickly and control them efficiently,” explains Laszlo Jud. “At the same time, the B3

control system supports open data exchange via OPC UA interfaces, providing the ideal basis for integration into modern production environments and IIoT applications.” Role-based user permissions, intelligent monitoring systems and automated parameter settings further reduce the risk of operator error while improving process control.



“The BSTL 610-150 was developed for the cost-effective series production of complex stamped parts for the AI and electronics industries.”

Laszlo Jud, Vice President Technology at BRUDERER

Precision and process reliability at every stage

The integrated BSV 250L servo feed unit further enhances overall machine performance. It accommodates strip widths of up to 250 mm wide while maintaining high feed accuracy, even at maximum stroke rates. A patented strip thickness measurement system continuously detects material variations, while functions such as compensation for roller contamination and concentricity errors further improve process reliability. “With the BSTL 610-150, we deliberately focused on what matters most in day-to-day production,” says Laszlo Jud. “Stable processes, intuitive operation and high output – all backed by the consistently outstanding quality our customers expect from BRUDERER.” ■

University of Stuttgart, Institute for Metal Forming Technology (IFU)

BRUDERER technology driving the next generation of research

BRUDERER collaborates with universities across Germany on a range of innovative projects, such as with the Institute for Metal Forming Technology (IFU) at the University of Stuttgart. This benefits both teaching and research, as well as BRUDERER and its customers – and, in the long term, the market as a whole.

Close links with industry are a defining feature of many universities and research institutes, and the University of Stuttgart is no exception. Within the Mechanical Engineering Master's programme, students gain practical experience in the university's own "laboratory", which is equipped with production technology from a range of manufacturers, including a BRUDERER BSTA 510 high-performance automatic stamping press. "From the fifth semester onwards, we teach the fundamentals of forming technology," explains Prof. Mathias Liewald, Head of the Institute for Metal Forming Technology (IFU). "Students then deepen their knowledge through practical work, their own projects or research collaborations." In his view, this hands-on experience is invaluable in helping students understand complex relationships and translate theory into practice.

Utmost precision for research

Collaboration with universities has long been part of BRUDERER's philosophy. For decades, the company has supplied research institutions with high-performance automatic stamping presses and associated equipment. This investment delivers clear benefits: scientific findings complement BRUDERER's practical expertise, generating fresh impetus for future applications and technological advances. Equally important, students gain first-hand experience of the precision and process reliability that define BRUDERER ma-

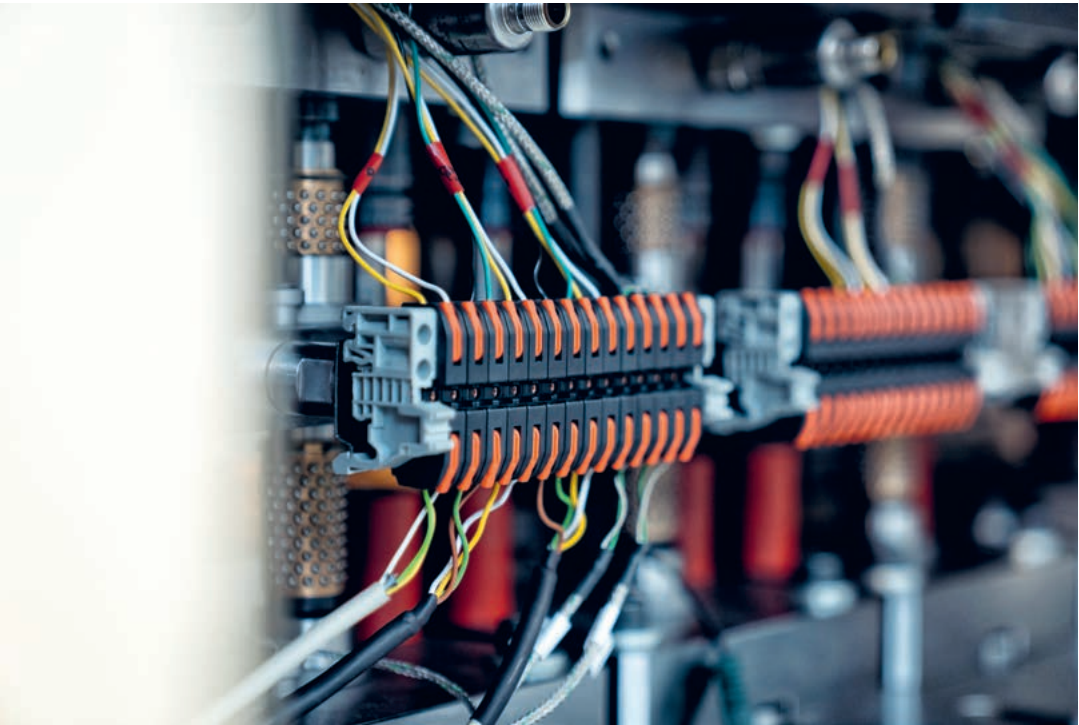


"In microscopic analysis, even minor deviations have a measurable impact on the results. That's why machine precision is absolutely essential."

Marcel Görz, Research Associate, IFU

Where research meets industrial practice

The collaboration between BRUDERER and the Institute for Metal Forming Technology (IFU) at the University of Stuttgart creates scope for innovative ideas in high-performance stamping technology. Research into artificial intelligence, process stability and hydrogen technology is providing impetus for industry, academia and future applications.



Strategically placed sensors provide a wide range of research data.



Prof. Mathias Liewald is the Head of the Institute for Metal Forming Technology (IFU) at the University of Stuttgart

Bringing research and industry together has been a hallmark of Prof. Mathias Liewald’s career. After studying mechanical engineering in Dortmund, he worked in research and development before moving into senior roles within the metal forming industry. Since 2005, he has headed the IFU, where his work focuses on sheet metal forming and semi-solid forming as well as forging technology, process simulation and advanced manufacturing processes. His connection with BRUDERER stretches back even further. As a student in 1982, he worked with their German sales team; an experience he still describes as his introduction to forming technology.

chines, enabling them to recognise and value these qualities throughout their future careers in industry. Research Associate Marcel Görz explains why this level of precision is so important: “Many of our projects focus on developing new cutting processes that increase the proportion of the smooth-cut surface along the cutting edge. To this end, samples are taken for micrograph analysis. During microscopic examination, even deviations in the double-digit micrometre range become measurable and thus influence the results. That makes machine precision absolutely

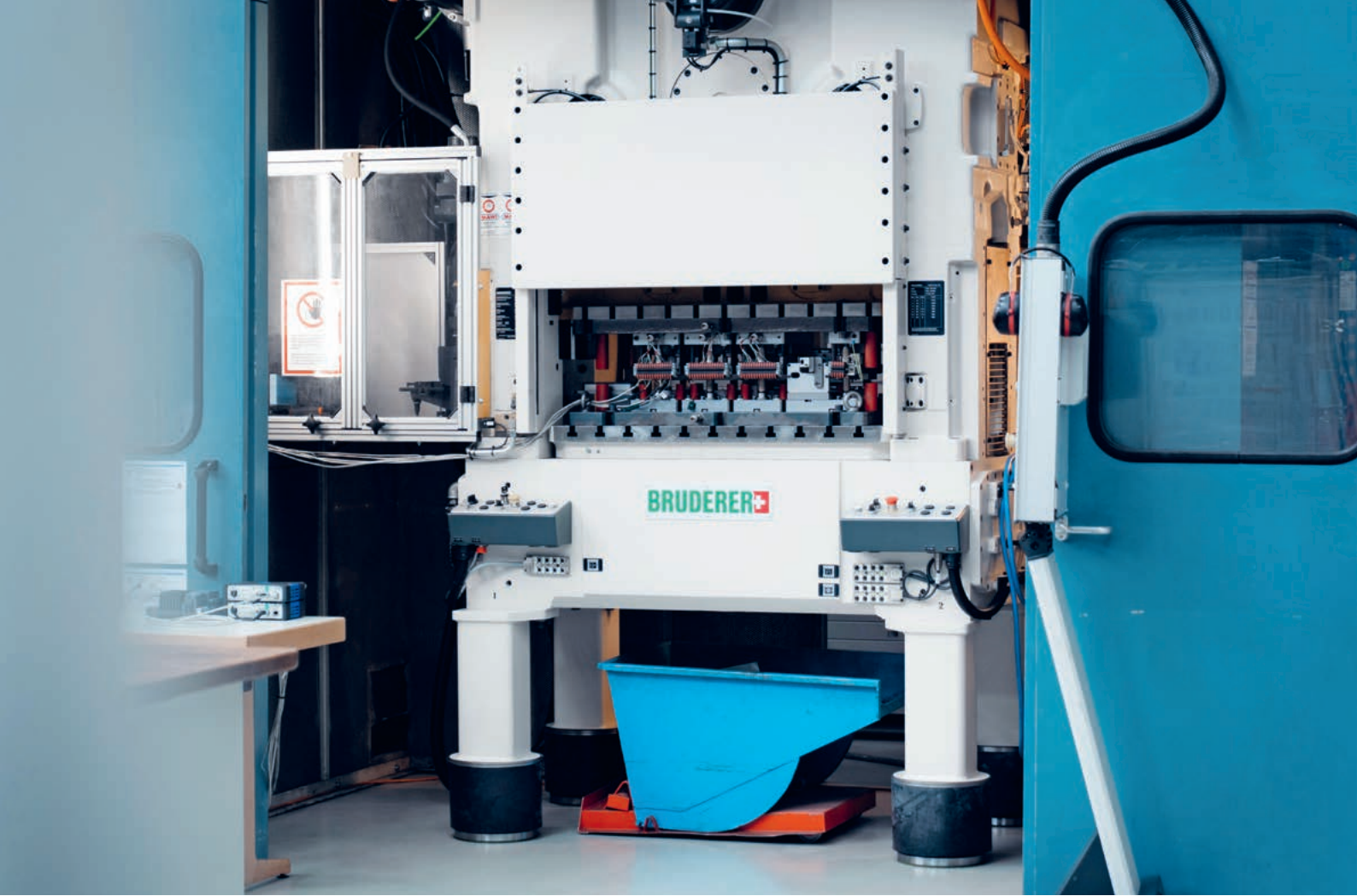
“The assistance system is designed to learn from every stroke.”

Prof. Mathias Liewald, Head of Institute, IFU

critical. Only then can any differences observed be attributed with confidence to the process under investigation. With BRUDERER, we know we can rely on that precision every time.”

Artificial intelligence in production

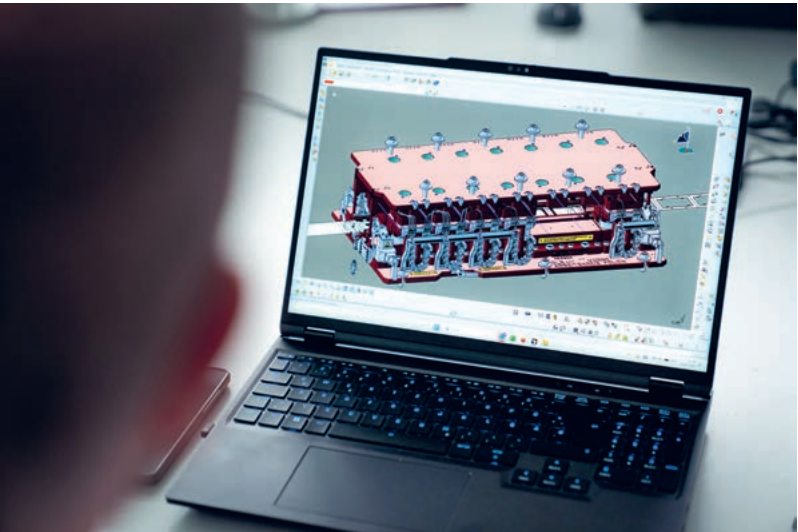
Digitalisation is currently one of the IFU’s key research priorities. Together with his research team, Prof. Liewald is investigating the optimum placement of sensors to capture as much data



as possible, both within the machine and the stamping tool. The focus is on forces, vibrations, temperatures, material behaviour and even the smallest process deviations. Building on this foundation, machine learning is used to develop long-term models that will simplify the operation of high-performance automatic stamping presses, particularly for less experienced operators. In future, artificial intelligence could monitor processes, assess deviations, recommend corrective actions and provide direct support in response to user queries. “The assistance system is designed to learn from every stroke and provide the most reliable information possible for specific situations,” explains Prof. Liewald. “In this way, we hope artificial intelligence will help address the shortage of skilled workers.”

Working backwards from the finished process

Data also plays a central role in the Institute’s second major research field: analysing start-up and series production processes. Research is being conducted into how both machine and stamping tool behave under cold and warm operating conditions, and how these changes affect process stability. Today, stamping presses often have to be stopped, manually adjusted and restarted



Scientific findings regarding the temperature in the stamping tool and the press can lead to enhanced process stability.

whenever deviations occur. To overcome this, the IFU has developed a special wedge adjustment mechanism. Thanks to its self-locking design and a motorised drive, it can be adjusted by fractions of a micrometre during operation, thereby compensating for thermally induced changes in length. A key aspect of this is building virtual process chains, visualising energy consumption and working backwards from the desired outcome to determine the most efficient sequence of processes.

Foil forming for hydrogen technology

Another area of research at the IFU is the forming of metallic foils. For several years, Research Associate Patrick Cyron has been investigating foils made from materials such as copper, stainless steel and titanium. At 100 micrometres thick or less, these materials behave very differently from



“Our aim is to help companies establish a strong position in this emerging field.”

Patrick Cyron, Research Associate, IFU



Ongoing professional dialogue amongst experts in the field drives ideas forward.

conventional sheet metal. Many of the research questions arise directly from collaboration with industry, including through the Foil Forming Working Group (“Arbeitskreis Folien”), which Cyron co-founded and of which BRUDERER is also a founding member. In his current work, bipolar plates for hydrogen technology play an important role. For the IFU, this is a particularly valuable field of research; there are still many unanswered questions in sheet metal forming and hardly any other institute possesses a comparable combination of tooling, machine technology and industrial knowledge exchange. Cyron’s objective is clear: “Our aim is to build expertise sustainably and to support companies in establishing a strong long-term position in this emerging field.”

Creating value beyond research

Alongside research into future technologies, collaboration with universities and research institutes also offers immediate practical benefits. It gives prospective BRUDERER customers and other interested parties the opportunity to test stamping tools and production processes outside of their own facilities. This allows applications to be tested under real-world conditions without interrupting ongoing production at their own site. At the same time, it fosters a substantive exchange with stamping technology experts on neutral ground and with a focus on specific production issues. In this way, customers can experience first-hand the performance and potential of BRUDERER’s high-performance automatic stamping presses.

PROFILE



The Institute for Metal Forming Technology (IFU) was established in the winter semester of 1958/59 and has since been one of the manufacturing technology institutes at the University of Stuttgart.

It deals with research projects and development work in the fields of sheet metal forming and cutting processes, semi-solid forming, forging technology, material characterisation and modelling as well as process control, machine learning and digitalisation in forming technology.



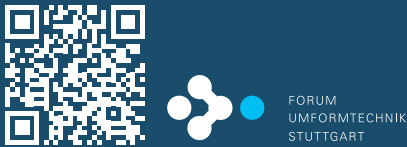
University of Stuttgart
Institute for Metal Forming Technology (IFU)
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A forum for technology transfer

The “Forum Umformtechnik Stuttgart” provides a platform for dialogue between research and industry, exploring questions such as how forming technology is evolving, which solutions industry will require in the future and where research and practice can learn from one another.

Twice a year, members of the “Forum Umformtechnik Stuttgart” meet for specialist talks, open discussions, and informal chats, and also to enjoy a meal together. Ronald Baiker, Area Sales Manager at BRUDERER GmbH Germany, attends regularly and greatly values the interdisciplinary exchange: “Events like these encourage us to look beyond our own perspective,” he says. “You always take away new ideas or insights.”

Further information on the “Forum Umformtechnik Stuttgart” and the networking events can be found here:



VE-CA S.r.l., Cavriago

An Italian success story built on Swiss precision



From left to right: Alan Venturi (Quality Manager), Maurizio Venturi (Managing Director) and Marco Venturi (Technical Director)

The story of VE-CA S.r.l. began when Sauro Venturi returned to Italy after completing his training with a leading Swiss manufacturer of electric motors. Half a century after the family-owned business was founded, VE-CA is now opening a new chapter in its successful cross-border collaboration through the installation of a new BRUDERER BSTA 410-110 B2.

Many business success stories begin long before the company itself is founded, as is the case with VE-CA S.r.l., a production company based in Cavriago in northern Italy. During the 1960s, founder Sauro Venturi learnt his trade at a Swiss company specialising in electric motors, before returning home at the end of the decade to establish VE-CA S.r.l. in 1976. His ambition was clear: to design tooling and manufacture stamped metal components to the highest quality standards. Fifty years on, it has become a highly specialised family-run business. With the addition of a new BRUDERER BSTA 410-110 B2, its close connection to Swiss precision continues to shape its future.

Five decades of uncompromising quality

Today, VE-CA S.r.l. is managed by the second generation. Maurizio Venturi is responsible for the commercial side of the business, while his brother Marco Venturi oversees technical operations. The third generation is already actively involved, with Alan and Manuel Venturi helping to secure the company's long-term future.

Throughout its history, the company's guiding principles and values have remained unchanged. Exacting quality standards underpin every stage of production, from the selection of raw materials and in-house toolmaking to series production and finishing. Certifications including ISO 9001:2015 and ISO 14001:2015 reflect this consistent commitment to quality and environmental management.

Pursuit of excellence

VE-CA S.r.l. specialises in stamping and deep drawing small and medium-sized components from a wide range of metals and alloys, including stainless steel, aluminium, copper and titanium. Its services are tailored to customers in sectors such as measurement technology, electronics and the automotive industry. "We see ourselves above all as partners to our customers, not merely as suppliers," explains Maurizio Venturi. As a result, components are rarely manufactured exactly as specified. Instead, they are often jointly redesigned to improve functionality, simplify production or reduce manufacturing costs. This may mean, for example, that several components previously assembled separately are combined into a single, highly complex part. When producing such parts in high volumes, machine quality becomes a decisive factor in ensuring process reliability,

Family business with a clear vision for the future

VE-CA S.r.l. has a long tradition of producing precision-stamped metal parts made in Italy. Combining technical expertise with uncompromising quality standards, the family-owned company continues to invest in the future, most recently with the installation of its third BRUDERER stamping press.



New stamping presses in operation at VE-CA S.r.l.

repeatability and cost efficiency. For this reason, VE-CA S.r.l. has relied on BRUDERER high-performance automatic stamping presses for more than two decades.

“Thanks to the BRUDERER presses, the maintenance required on our stamping tools has been reduced by around 40 %.”

Maurizio Venturi
Managing Director VE-CA S.r.l.

From precision to flexibility

Three of the company’s stamping presses are supplied by BRUDERER in Frasnacht, made in Switzerland. With press forces ranging from 25 to 50 tonnes and production speeds of between 200 and 1,000 strokes per minute, they are used primarily for demanding applications where both exceptional precision and high out-



Components for EV battery cells

put are essential. “When we invested in our first BRUDERER high-performance automatic stamping press, our objective was to further improve our manufacturing processes,” recalls Maurizio Venturi. The investment quickly proved its value.

His confidence in the machines has only grown over the years: “Thanks to the BRUDERER presses, the maintenance required on our stamping tools has been reduced by around 40 per cent.”



The tools are designed and manufactured for high speeds and very large production volumes.

He also highlights the machines’ robustness, while noting that the latest generation offers even greater flexibility and significantly faster production changeovers. The company’s production facilities are further complemented by seven transfer presses with up to twelve stations and press forces from 20 to 160 tonnes, together with nine mechanical presses covering the same press force range.

Investing today for tomorrow’s challenges

Building on these positive experiences and anticipating future market developments, VE-CA S.r.l. invested in its third BRUDERER press last year. “The trend towards smaller, lighter and more powerful components and parts with higher added value will continue,” says Maurizio Venturi. “In electromobility, for example, demand for active and passive components such as sensors and connectors will keep increasing. The greater the precision these components require, the more important it becomes to manufacture them on high-performance BRUDERER stamping presses.”

The new BSTA 410-110 B2 stamping press has already demonstrated its capabilities in practice. Recently, VE-CA S.r.l. completed pilot production of a specially developed membrane. The challenge was to maintain tolerances within hundredths of a millimetre along the defined break line – not just for individual parts, but consistently across large production runs. Achieving this level of repeatability was made possible in no small part by the BRUDERER servo feed system, which provides the precision and control required for such demanding production processes. At VE-CA S.r.l., Swiss precision technology combines with decades of expertise in toolmaking for the sophisticated manufacture of bespoke customer solutions. ■

PROFILE



Founded in 1976, VE-CA S.r.l. is based in Cavriago (Italy), and employs 19 people. Across a production area of around 2,000m², the company manufactures stamped and deep-drawn components from stainless steel, steel, copper, aluminium, brass, bronze and titanium.

Its services include component design and co-development, in-house toolmaking, stamping, forming, deep drawing and a wide range of secondary process operations.

Each year, VE-CA S.r.l. produces more than 300 million components for customers in the electronics, HVAC, household appliances, measurement technology and automotive sectors. Its products are exported to customers on all five continents.



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New life for well-loved machinery

Many BRUDERER high-performance automatic stamping presses have been operating reliably for decades. While their robust mechanical design is built to last, electronic control systems inevitably reach the end of their service life sooner. Thanks to newly available control retrofits, however, customers can continue to rely on proven machines while benefitting from enhanced process reliability, modern functionality and additional advantages.

Stamping presses from BRUDERER are recognised worldwide for their exceptional longevity derived from their unique mechanical design, whilst maintaining consistent precision. Mechanical spare parts remain available even for machines commissioned more than 50 years ago. Electronic components, however, present a different challenge. “We source electronic components externally, so unfortunately their long-term availability cannot always be guaranteed,” explains Rainer Hungerbühler, Vice President Sales, Customer Services and Marketing at BRUDERER.

An upgrade that makes economic sense
To ensure customers receive the right solution for every generation of machine and control system, BRUDERER now offers different types of con-



trol system retrofits. The BR control system was developed to ensure the long-term operational capability of stamping presses from early model series. It enables earlier machine generations to be modernised cost-effectively by replacing the BHG drive system with an affordable drive and control system. “With the B3 control system, even BRUDERER stamping presses that have been in service for many years can continue operating reliably for another 25 years while retaining their familiar functionality,” emphasises Hungerbühler. “The upgrade also significantly improves energy efficiency, helping customers reduce operating costs over the long term. From a sustainability perspective, this is another important advantage.”

Future-proof control system upgrades

To provide the right solution for every machine generation, BRUDERER now offers a choice of control system retrofits tailored to different machine models and existing configurations. These three types of control systems are available to technically modernise long-serving machines and help ensure reliable operation well into the future.



“With the BR control system, even long-serving BRUDERER presses can continue operating reliably for another 25 years with their familiar functionality.”

Rainer Hungerbühler
Vice President Sales, Customer Services and Marketing at BRUDERER

The optimal system for individual requirements
Presses built from around 1990 onwards can be retrofitted with either a BL or B3 control system. Both have intuitive touchscreen operation and user-friendly interfaces, along with practical functions such as customisable screen layouts. “Customers can choose the control system that best suits the functionality they require,” explains Hungerbühler, for example relating to the stroke change or depending on the feed unit used. “Our after-sales service team and our field service staff around the world are happy to provide support, drawing on their extensive expertise, to help find the optimal control system for the customers’ individual stamping presses.”

Modernisation with minimal downtime
Before every retrofit, BRUDERER’s after-sales specialists assess the individual machine, taking into account its model, technical condition and service history. According to Hungerbühler, keeping production running is always the highest priority: “Our aim is to minimise downtime as much as possible,” he says. “That’s why we plan every retrofit together with our customers and also offer a machine exchange programme to keep production interruptions to an absolute minimum.”

You too can benefit from a control system retrofit!

Would you like to harness the potential of a BR, BL or B3 control system? Then please contact your BRUDERER sales representative. They will be happy to assist you in clarifying details regarding the new control system and the next steps.

www.bruderer.com

B3 control system	
Models	BSTA 200 280 410 510 710 810 1250 1600 2500 250 300 500 800
Features	– Modern graphical user interface with 21" touchscreen – User management – Semi-automatic or fully automatic stroke adjustment – Dynamic ram height adjustment – Press force monitoring – Integrated tool monitoring – BSV servo feed units – BSA servo axes – BSP lamination stacking control – Special options
BL control system	
Models	BSTA 250 300 500 800 25 50 80 110 125 160
Features	– Simplified graphical user interface with 15" touchscreen – User management – Manual stroke adjustment – Dynamic ram height adjustment – Press force monitoring – Integrated tool monitoring – Energy-saving functions – BSV L servo feed units
BR control system	
Models	BSTA 25 50 80 110 125 160
Features	– Control panel – AC motor to replace hydraulic transmission – ± Stroke speed control – Manual ram height adjustment

Customer proximity for customer benefit

Trade fairs and conferences around the world are much more than exhibition platforms for BRUDERER. They provide valuable opportunities to present new developments, exchange ideas with customers and identify emerging market requirements that feed directly into future product development. The response over the past year – and again this year – confirms the value of this close dialogue.

Whether at Blechexpo and Coiltech in Germany, CCMT in Shanghai, IMTEX in India or MACH in the UK, BRUDERER uses international exhibitions and events to showcase its latest innovations while gathering first-hand insights from customers. For Rainer Hungerbühler, Vice President Sales, Customer Services and Marketing at BRUDERER, these conversations are invaluable for analysis and gaining fresh ideas: “Despite today’s challenging economic climate, we’re seeing strong interest in our new BSP lamination stacking control and the B3 control system,” he says. “Both address key customer requirements and have been exceptionally well received.” The market responded positively to the latest product launch, reflecting strong interest in innovation and demand for solutions that address specific market needs.

“Our aim is to turn new technologies into practical, integrated solutions.”

Rainer Hungerbühler
Vice President Sales, Customer Services and Marketing at BRUDERER

Practical innovation through customer dialogue
In conversations with trade fair visitors and customers, BRUDERER’s revised modular training concept is also currently a key topic. This was developed in response to direct customer feedback. The new BSTL 610-150 high-performance fixed-stroke stamping press also reflects this cus-

tomers-focused approach. “Markets are becoming increasingly dynamic, and many customers are looking for solutions tailored to their individual production requirements,” explains Hungerbühler. This calls for flexibility, ingenuity and engineering expertise. By continuously building on its strengths in precision, process reliability and productivity, BRUDERER helps customers strengthen their competitiveness for the long term. Current development efforts therefore focus on increasing productivity while reducing downtime to an absolute minimum. “Our aim is to enable our customers to produce stamped parts in an extremely cost-effective and process-reliable manner in the face of international competition, using our high-performance automatic stamping presses,” adds Hungerbühler.

AI shaping the next generation of manufacturing
As discussions with customers and market observations show, the topic of artificial intelligence will continue to grow in importance. BRUDERER is responding in two ways: by developing innovative end-to-end solutions for the production of stamped parts used in AI data centres, and by exploring how AI can further enhance customer service. “We are well positioned to meet these changing market demands with practical and cost-effective integrated solutions,” says Hungerbühler. “Above all, we’re committed to ensuring that new technologies deliver tangible benefits for our customers.” ■

Absorbed technical conversation at Coiltech in Augsburg



BSP: Flexible rotor-stator production

The BSP lamination stacking control is designed for rotor-stator production, combining flexibility with high efficiency, precision and cost-effectiveness. Features such as integrated strip thickness measurement, stack height control and comprehensive monitoring functions ensure reliable processes, while simple programming, fast and process-reliable changeovers and minimal training requirements make operation straightforward.

B3: Intuitive control system

The latest B3 control system combines modern touch-screen operation with extensive customisation options. The home screen can be adapted to different user roles, customer-specific applications are easily integrated, and monitoring functions are configured automatically for greater ease of use.

Training: Tailored to customer needs

BRUDERER’s new training concept offers modular programmes that can be adapted to individual requirements. Instead of standardised courses, customers can choose targeted training modules ranging from basic machine operation to advanced process optimisation.

BSTL range: Greater capacity

The BSTL 610-150 extends the BSTL series with a larger tool loading area and higher press force. Designed for efficient high-volume production, it combines our proven fixed-stroke drive technology with selectable stroke lengths and the B3 control system to deliver outstanding process reliability and simple operation.

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