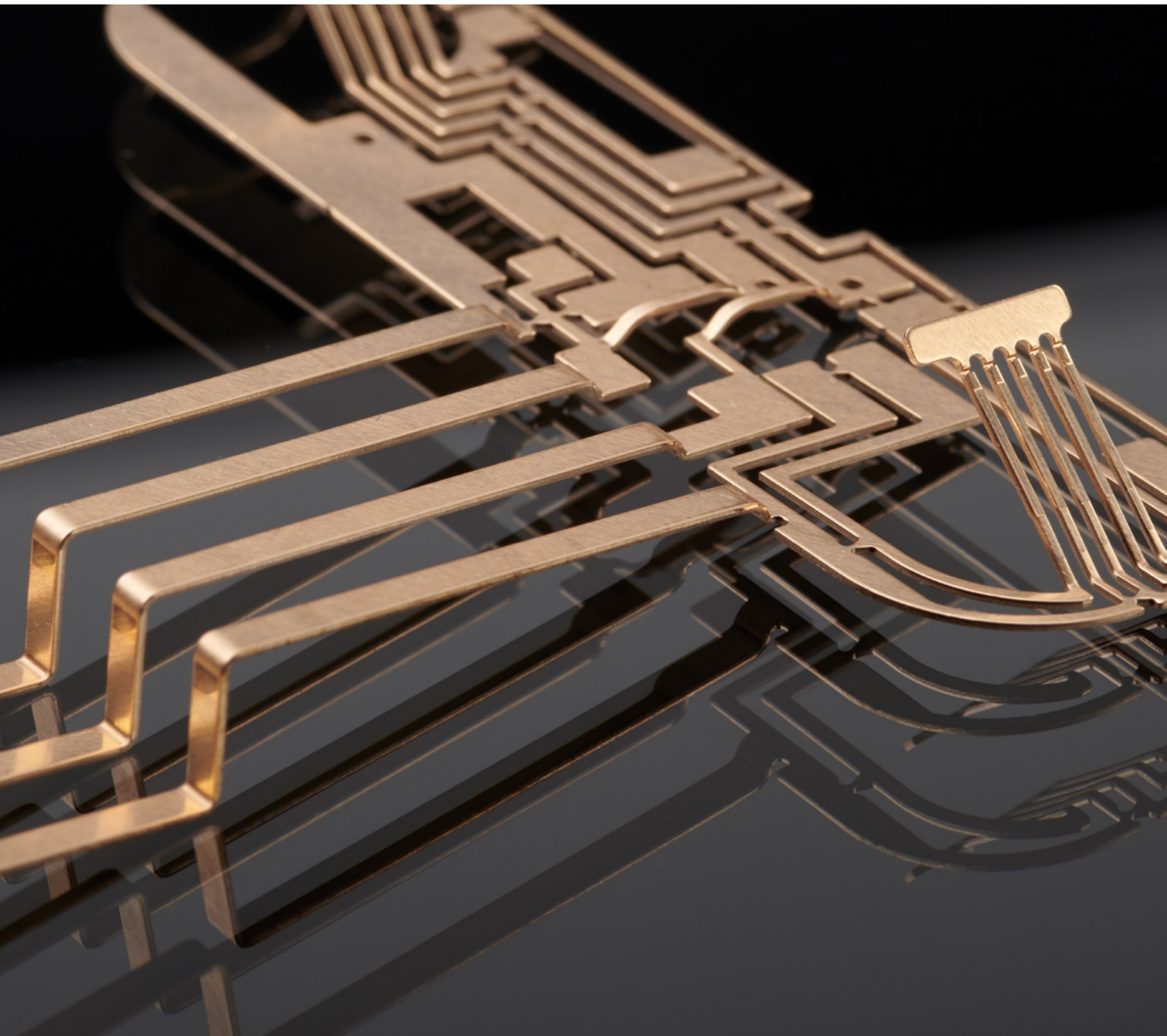


STAMPER

The magazine for high-performance stamping technology / 2019



G.RAU GMBH & CO. KG

Global metal specialists
who have come to trust BRUDERER.

WEISS-AUG CO.

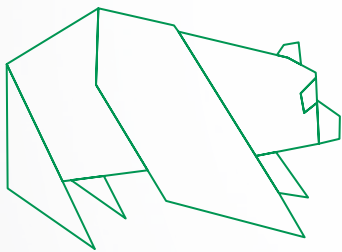
BRUDERER's high-performance stamping technology
has helped Weiss-Aug increase productivity.

PREVIEW BLECHEXPO 2019

The ideal solution for every task.
Three stamping lines in action.

Precision matters.

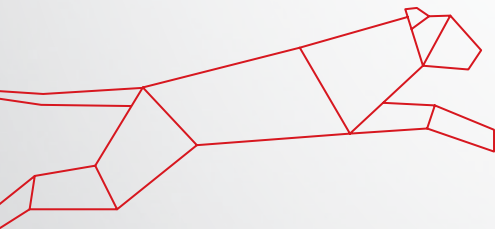
BRUDERER stamping presses are made for complex tasks. Come and see what we have to offer – both in terms of new and retrofitted machines – at Blechexpo in Stuttgart where we will have three complete stamping solutions on display.



strong

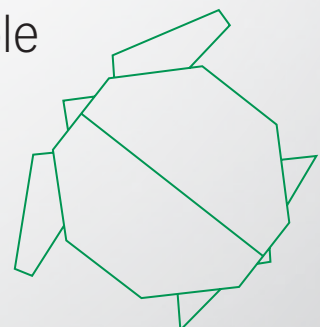


precise



fast

durable





Andreas Fischer,
CEO

At the heart of stamping technology

In this, our latest edition of STAMPER, we are proud to present a few select representatives of stamping and tool technology and their peripheral equipment, located both in the USA and at the heart of the German precision engineering sector, namely Pforzheim. No other region is home to as many precision engineering, tool-making, stamping and forming companies. All five firms that we feature have been our partners for many years now, and have come to rely on the BSTA high-performance stamping presses – read on to find out more about their experiences.

One of them is G.RAU GmbH & Co. KG – experts in the production of strips, tubes and wires using precious metals, special alloys and composite materials. The company was founded in 1877 to supply the local jewellery industry, but has constantly evolved and developed since then to become one of the world's leading specialists for metal solutions.

From there we journey overseas to our long-term US partner Weiss-Aug Co.Inc. This company has developed an in-die laser welding process for use in the manufacturing of high-precision parts. After over 30 years and with countless billions of precision parts produced on BRUDERER high-performance stamping presses for the automotive and medical technology industries, Weiss-Aug has fully updated its machine inventory, and is pleased to report on their initial experiences with their new equipment.

Back in Germany and just a few miles down the road from G.RAU, we have a market leader in the manufacturing of modular design high-precision tools for clients from around the world. Founder Fritz Stepper made a name for himself with the concept of progressive tools. His son Michael has since taken over, with the company now providing perfect

high-performance tools for the most demanding clientele of BRUDERER stamping presses.

hapema GmbH and Leicht Stanzautomation GmbH, who are also headquartered in the Pforzheim area, are another two innovative businesses in this sector. hapema is a stamping company and developer of precision tools, and a valued customer and partner to many international firms, enjoying constant growth.

We then paid a visit to another global player and market leader in hi-tech components for strip processing, namely Leicht Stamping Automation – a reputed specialist for peripheral systems in stamping and forming technology. It never ceases to amaze me how much innovation comes into play in order to optimise and constantly improve processes in all areas.

And now you too can be amazed! BRUDERER, with a number of trade fair partners, will have a presence at the forthcoming Blechexpo, being held from 5–8 November 2019 in Stuttgart. This year, we will be showing no fewer than three complete stamping solutions at Blechexpo. Equipped with precision tools by Mark, Stepper and hapema respectively, they will be stamping components for a variety of applications, from low speed to high speed. We would love for you to pay us a visit, as there will be plenty to see and to discover.

In the meantime, happy reading.

*Kind regards,
Andreas Fischer*

BRUDERER at Blechexpo 2019:

THE RIGHT SOLUTION FOR EVERY APPLICATION.

BRUDERER in action.
Three stamping lines –
endless possibilities.
See for yourselves at
Blechexpo.

Everyone involved in stamping technology knows BRUDERER. Especially when it comes to high-speed and high-performance stamping. With its comprehensive range of products and technologies, BRUDERER offers the perfect solution for almost any stamping task. As such, the BRUDERER stand at this year's Blechexpo in Stuttgart will be well worth a visit.

From 5-8 November 2019, it will be trade fair time again. The 14th Blechexpo, in conjunction with the 7th Schweisstec fair, will be opening its doors in Stuttgart to expert visitors and exhibitors. This year's event has already generated a great deal of interest, with the organisers registering more exhibitors, more exhibition floor space and a greater international presence than in 2017. The numbers speak for themselves, with no fewer than 150 more primary exhibitors and a 20% increase in exhibition floor space compared with two years ago. It is looking very likely that the results from the record-breaking year in 2017 will be topped, with some 1,500 exhibitors across nine exhibition halls set to greet visitors to Blechexpo/Schweisstec 2019.



Blechexpo 2019
Landesmesse Stuttgart
5. – 8.11.2019
BRUDERER: Hall 6, Stand 6308
www.blechexpo-messe.de

www.bruderer.com/en/expo/

BLECHEXPO (Germany, Stuttgart)
FABTECH (USA, Chicago)

05.11. – 08.11.2019
11.11. – 14.11.2019

2-in-1 solution for all speeds

At Blechexpo, BRUDERER will be exhibiting a complete stamping line consisting of a BSTA 510-125B2 with BPG 22 planetary gear and a stamping tool made by the Austrian toolmaker Mark Metallwarenfabrik GmbH. Thanks to its clever BPG 22 gear technology, the BSTA can be run at high stroke speeds in production mode as well as at low speeds in test or BPG mode. With this system, which represents an alternative to a servo drive, BRUDERER is the only manufacturer who offers a solution where stamping tools can be tested at low stroke speeds directly on the production machine. Of course, parts can also be produced in BPG mode at low speeds, and using the stroke speed modulation in BPG mode, high productivity can be achieved even at those low stroke speeds.

The technology behind this is a planetary gear directly mounted on the main motor of the stamping press. It allows the operator to run the press at the lowest stroke speeds whilst using the maximum stamping force and full operating capacity, all the while accurately controlled via a hand-held control unit.

The values obtained in BPG mode can be transferred one-to-one into normal production mode, resulting in increased efficiency and a tangible gain in productivity, as a stamping tool can be tested in BPG mode on the same stamping press which is then subsequently used for high-speed production.

Visitors to the BRUDERER trade stand 6308 in hall 6 will be able to see the benefits for themselves, with a stamping line featuring a BSTA 510-125 with planetary gear as the centre piece. Equipped with a precision stamping tool courtesy of Mark, it will produce detent pins for the automotive industry at 250 strokes per minute, set to a stroke length of 57 mm. These deep-drawing parts are combined into subassemblies at Mark and subsequently mounted into the shifting domes of gearboxes.

The family-run company from Spital am Pyhrn in Austria is a global leader in metal processing. BRUDERER stamping presses produce perfect deep-drawn parts, making them an automatic first choice for Mark. →

BSTA 510-125B2 STAMPING LINE IN FACTS AND FIGURES

Planetary gear	BPG 22
Servo feed	BSV 300
Feed length	27 mm
Stamping tool	Mark Metallwarenfabrik GmbH
Stamped part	Detent pin in deep-drawing process
Stamping strip	Strip thickness: 0.7 mm Strip width: 30 mm Strip material: steel strip DC 04
Speed max.	250 spm
Stroke height	57 mm
Output	250 parts/min.
Pallet winder	NOXON Automation GmbH + Co. KG, PH 14-2T
Oiling	Raziol Zibulla & Sohn GmbH, Benjamin 4.0 und LAMA 3000
Tool monitoring	BRUDERER
Sound-proof cabin	Fahrer AG
Location	BRUDERER, Hall 6, Stand 6308



BSTA 510

Press force	510 kN
Tool loading area	950 – 1,500 mm
Speed max.	100 – 1,120 spm
Planetary gear	BPG 22

Different models on request, subject to change.

High speed – even higher precision

As a further highlight at the trade fair, BRUDERER will be demonstrating a stamping line consisting of a high-speed BSTA 200HS-60B2 with a precision stamping tool by Stepper. Toolmaker Fritz Stepper GmbH & Co. KG from Pforzheim is a long-time associate of BRUDERER and one of the first ports of call for the high-volume, high-precision manufacture of electronic connectors and contacts. The two firms will combine to demonstrate what is possible today and in the future in the field of ultra-high-speed stamping.

Stepper has provided a multi-stage stamping tool for this purpose which can be used for high-precision production with a speed of up to 1,700 strokes per minute. For optimum operation of the stamping tool, the press offers the function of adjusting the BDC ram position during stamping in increments of μm , and further adjustments of the ram position according to various criteria.



BSTA 200HS-60B2 STAMPING LINE IN FACTS AND FIGURES

Servo feed	BSV 170
Feed length	4.60 mm
Stamping tool	Fritz Stepper GmbH & Co.KG, F1-Supertec
Stamped part	Plug-in contact
Stamping strip	Strip thickness: 0.15 mm Strip width: 18.9 mm Strip material: CuSn6
Speed max.	1,700 spm
Stroke height	13 mm
Output	3,400 parts/min.
Vertical decoiling technology	Leicht Stanzautomation GmbH, EW-250
Automatic spool winder	Leicht Stanzautomation GmbH, ASW-102
Strip lubrication system	SLE Technology GmbH, MICROLUB SL SMART
Tool monitoring	BRUDERER
Sound-proof cabin	Fahrer AG
Location	BRUDERER, Hall 6, Stand 6308

BSTA 200HS


Press force	200 kN
Tool loading area	600 mm
Speed max.	100 – 2,300 spm

Different models on request, subject to change.

At this year's Blechexpo, BRUDERER will be demonstrating the impressive range of machines and technologies that the company has to offer to meet the variety of needs of the stamping and forming sectors.

Original BRUDERER retrofit as used by Leicht Stanzautomation

A third stamping line from BRUDERER can be seen in hall 6 at the trade fair stand 6208 of Leicht Stanzautomation GmbH, namely a BSTA 80-97B2 retrofit with a modular progressive tool by hapema GmbH and peripheral equipment by Leicht. For over 30 years, the company hapema has stood for innovative solutions in the field of stamping technology. hapema provides a two-stage progressive tool made in 2008, on which contact springs are produced at 600 strokes per minute. The custom-designed contact riveting station is protected by a utility model specification. Even after many years in production, the stamping tool is still going strong and meets the exacting quality requirements.

In short, this year's Blechexpo is a great showcase for the wide range of machines and technology which BRUDERER offers for various applications in the stamping and forming industry. 



Example of a BRUDERER retrofit – a BSTA 50R-95 with B2 control and a BBV 202/120 roll feed.

BSTA 80-97B2 RETROFIT STAMPING LINE IN FACTS AND FIGURES

Servo feed	BSV 300
Feed length	25 mm
Stamping tool	hapema GmbH
Stamped part	Contact spring
Stamping strip	Strip thickness: 0.12 mm Strip width: 35 mm Strip material: 1.4301, stainless steel
Speed max.	600 spm
Stroke height	32 mm
Output	1,200 parts/min.
Horizontal rewinding technology	Leicht Stanzautomation GmbH, PW-150-BA-90
Pallet winder	Leicht Stanzautomation GmbH, PWA-150
Raw strip welding machine	Leicht Stanzautomation GmbH, RSM-80-CNC
Spot welding machine	Leicht Stanzautomation GmbH, PSM-120
Oiling	Microjet GmbH, minimum lubrication
Tool monitoring	BRUDERER
Sound-proof cabin	Fahrer AG
Location	Leicht Stanzautomation GmbH, Hall 6, Stand 6208

BSTA 80-97B2 RETROFIT

Press force	800 kN
Tool loading area	970 mm
Speed max.	100 – 1,000 spm

Different models on request, subject to change.

**THE
GLOBAL
SPECIALIST
FOR METALS
RELIES ON
BRUDERER.**



Pforzheim with its famous jewellery and watch industry is known as the ‚Golden City‘. What’s less widely known, however, is that Pforzheim’s jewellery production paved the way for further international industries such as precision manufacturing and medical and stamping technology.

The latter is the stomping ground for G.RAU GmbH & Co. KG, which like no other company is at home in the highly complex and versatile world of metals.

In 1877, Gustav Rau founded his company for the manufacture of pressings from gold and silver alloys and thus became a supplier for the regional jewellery industry. Shortly afterwards, with the introduction of mechanical production, the company began to flourish and expand. Today, G.RAU is a world-wide supplier in the field of metal engineering and acknowledged expert in the production of strips, tubes and wires made of precious metals, special alloys and composite materials. In addition, G.RAU also uses these prematerials to manufacture precision parts and entire complex assemblies. More than 200 various kinds of metals and metal alloys are processed and refined. 'Metals are our world' thus makes a fitting slogan for G.RAU. With its expert knowledge, the company is a trailblazer in the field of shape memory alloys, including special materials such as Nitinol, a corrosion-resistant, high-strength but nevertheless pseudoelastic nickel-titanium alloy.



Dr. Axel Pfrommer, Managing Partner
G.RAU GmbH & Co. KG

Valued partner for many branches of industry

Thanks to this special focus, G.RAU has become the preferred supplier to a variety of industry sectors. With its three business segments – semi-finished industrial products, parts & assemblies and semi-finished products for the medical engineering industry –, G.RAU is a declared partner of distinguished enterprises in the fields of automotive supply, electrical engineering, measurement and control technology, medical engineering and many other sectors. Today, with around 650 employees, G.RAU is still a family-owned metal engineering company with three production sites in Pforzheim, one in Costa Rica and a subsidiary in the United States.

G.RAU is also the parent company of several well-known suppliers in the field of medical technology, such as the two Pforzheim-based enterprises EUROFLEX GmbH and ADMEDES GmbH. Both companies are global market leaders in their respective product areas. Whereas EUROFLEX predominantly supplies semi-finished products for implants, such as wires, profiles or tubes, ADMEDES is specialised in the manufacture of components made of Nitinol. Currently, another five companies are part of the G.RAU Group with around 1,480 employees in Germany, USA and Costa Rica. With a group turnover of 196 million Euros – of which 88 million generated by G.RAU in Pforzheim – the company is now a global leader in metal solutions.

Expansion is the clear aim

This also explains the further strategic direction of the company. Managing Director and owner Dr. Axel Pfrommer has a clear vision: "We will continue to focus on a wide range of products and invest in expanding into new markets. As a specialist for metals and metal alloys, however, we will remain true to our strategic orientation and in addition, focus more intensely on the field of surface engineering, specifically on reel-to-reel electroplating." Here, the company has set its sights mainly on stamped parts with special surfaces, as they currently offer the best chances in the marketplace and provide the greatest opportunity for value creation. "We know this particular business segment like the back of our hands and can supply everything from a single source," says Dr. Pfrommer. "From the production of the

“Metals are our world.”

strip through to stamping and surface finishing, everything is done in house. For example, a metal strip for stamping can be plated with 2µm silver on one side and 4µm silver on the other side. For large quantities, this can result in enormous cost savings.”

Complete control over all processes

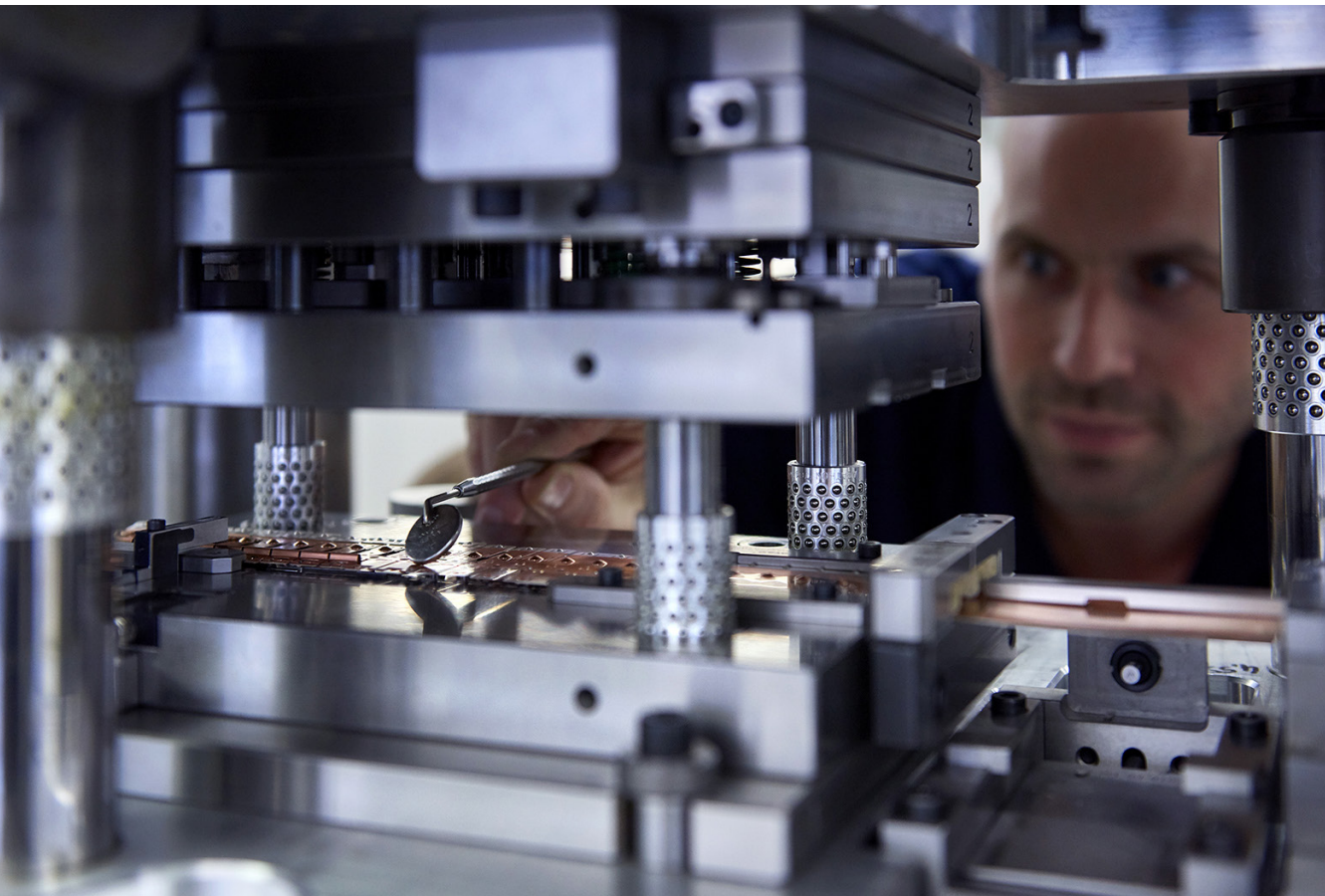
The high precision required can only be achieved with state-of-the-art technology. For this reason, G.RAU uses in-house surface treatment processes in all three factories in Pforzheim. “This allows us to keep an eye on all processes and deliver first-class quality for all types of coating,” assures Frank-Uwe Hofmann, team leader at G.RAU. “The same applies to stamping. All contact stamping-bending parts and assemblies are produced on modern stamping and bending equipment made by BRUDERER. “We use copper, copper alloys, nickel, nickel alloys, steel or stainless steel as well as compound materials based on gold and silver for the contact surfaces. Following this, our surface engineering department can electroplate or chemically coat stamped strips and parts.”

From semi-finished products to assemblies

G.RAU offers a comprehensive range of products and services in this business segment. Fully automated, they can process several strips simultaneously into assemblies, weld contact materials or rivet contacts, cut threads or insert screws – and all this with a process-integrated 100% vision control. A special product is the sliding contact which the expert for metal solutions produces for the automotive industry. It is used in the fuel tank encoder system and is part of the fuel gauge. As there are different types of petrol world-wide, the coating of the sliding contact is matched to the fuel type used. “Each sliding contact must be within a tolerance of five-hundredths of a millimeter. We have experimented with different stamping presses and thus know that the series production of this part within these tight tolerances is only possible on a high-performance BRUDERER stamping press. On the BRUDERER stamping line, all parts are fully finished and ready for dispatch.” →

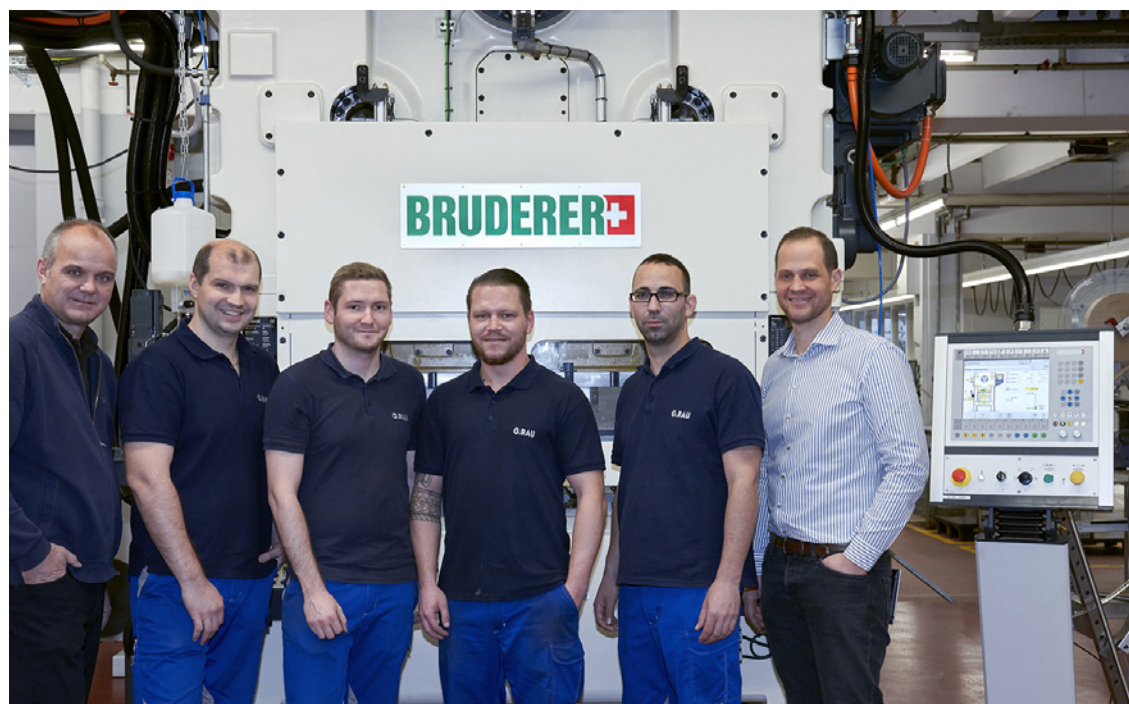
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*Dr. Axel Pfrommer,
Managing Partner G.RAU*



An eye for perfection: tool making at G.RAU.

Stamping team
G.RAU.



“A metal strip for stamping can be plated with 2µm silver on one side and 4µm silver on the other side. For large quantities, this can result in enormous cost savings.”

Dr. Axel Pfrommer

Precision in large-scale production

On 32,000 m² production space, G.RAU produces more than a billion stamped parts per year. “Developments show that we are on the right track with our claim for precision,” states Dr. Axel Pfrommer. “In our core markets, the trend towards even tighter tolerances will continue in the next few years. If a company can keep pace and deliver the best values, it will stay at the cutting edge well into the future. Therefore for stamped parts, we will continue to rely on sophisticated BRUDERER stamping technology.” Currently, 14 BSTA high-performance stamping presses in the range of 20 to 80 tons are in operation at Pforzheim. They process all types of steel, thermostatic bimetal, non-ferrous metal and alloy strips with widths of up to 120 mm and thicknesses from 60 µm to 5 mm.

Even stamping tools are produced in-house

The use of perfect stamping tools is vital for G.RAU in order to guarantee their customers the accuracy of the parts in series production. Thus it is no surprise that they have an in-house tooling department which produces stamping tools exclusively for internal use. Only in exceptional circumstances are additional stamping tools bought in. With their 40 members of staff, including six design engineers specialised in tool making, G.RAU are able to manufacture nearly all tool types themselves – a key advantage for their stamping business.

Achim Regelmann, Manager of the Division Parts & Assemblies at G.RAU, is convinced that “the synergies between stamping technology, deep drawing and extrusion lead to optimum tooling solutions for our clients. Our in-house surface engineering processes – such as electroplating, chemical coating or vibratory finishing, i.e. deburring – give us a clear competitive advantage.”

Customers appreciate experience and flexibility

According to Managing Director Dr. Pfrommer, the competitive advantage is not only due to the precision for which G.RAU is known, but also to the high degree of flexibility when developing innovative products for their customers. “Our expertise, which allows us to recommend and test new materials for specific applications and thus develop and produce unique products together with our customers, is a clear USP of G.RAU.”

As a reliable and competent partner, the company supports its customers in the complete material and process development process. G.RAU are able to make this promise as they have all the necessary departments and facilities in-house, from consulting, conceptual design and developing the samples to serial production. The development department has its own chemical and physics lab with a scanning electron microscope and several other testing systems. In the design department, high-performance tool concepts are developed using state-of-the-art 3D CAD systems and simulation programmes, and finalised in collaboration with the production and quality management department. These product development efforts, in combination with the experience of in-house tool manufacturing capabilities and project management, ensure professional assistance and advisory services even for complex projects.

Outstanding quality offers peace of mind

The current certifications in accordance with ISO 9001:2015, IATF 16949:2016 and ISO 13485:2016 clearly demonstrate that G.RAU puts special emphasis on compliance with all required standards as well as the continuous development and improvement of all business processes. This also applies to the topic of sustainability. Environmentally-friendly materials, energy-efficient components and the latest technology are taken into consideration for all projects as an integral part of the process. Thus G.RAU is also certified to ISO 14001:2015 and ISO 50001:2011, which is greatly appreciated by many customers and forms the basis of the high level of confidence that customers have placed in G.RAU. 

PUSHING FOR PERFECTION.

BRUDERER helps Weiss-Aug New Jersey with advanced stamping technology to be more productive.

By Lincoln Brunner

www.weiss-aug.com



In 2015, Weiss-Aug Co. located in East Hanover, New Jersey, noticed a recurring problem that they knew needed fixing, and fast. Their stamping dies, that were running in their 30+ year old BRUDERER presses – the old workhorses of their high-volume, high-precision stamping operation – were starting to show excessive wear. The company’s engineers knew the root cause wasn’t tooling. Good as they were, the old single-crank mechanical presses were showing the inevitable marks of time and, as it turned out, were the root cause for excessive die wear.

Other companies may not have raised the red flag right away. But with millions of parts being produced by every machine, every week and customers regularly demanding zero-PPM defects, the decision-makers at Weiss-Aug had to decide: Do we refurbish the existing machines or invest in new machinery at a premium cost of about 30 percent?

After a good bit of back-and-forth, Weiss-Aug Owner and Founder Dieter Weissenrieder decided to bet big on nine new BRUDERER BSTA 200 presses. The machines can stamp at a rate of up to 2,000 strokes per minute, ideal for the high-volume, intricate stampings – think connectors for electronics – that Weiss-Aug provides for its customers in the automotive, medical, interconnect, defense and aerospace industries.

“This is not a machine that is used to stamp boat anchors,” says Dieter Weissenrieder. “This is a state-of-the-art machine

and is the perfect machine for the sophisticated products that we produce. It is the favored high speed punch press for our type of industry.”

Not that the 20-ton BRUDERERS – most of which Weiss-Aug purchased in the 1980s – were high precision state-of-the-art machines at that time, but BRUDERER has made significant improvements in 30 years. Incredibly, some of those machines had accumulated 80,000 to 90,000 production hours and were still being used in regular production. In fact, part of the internal struggle at Weiss-Aug arose because the older machines were still humming along at high speeds, albeit not at the level of consistency that the company needs to maintain its quality standards.

After all the discussion, in-house and with BRUDERER, Weiss-Aug chose new machinery over refurbished because making that jump enabled them to increase their production output by improving die life while moving ahead with the technological advances that BRUDERER offered.



Mr. Alois J. Rupp, BRUDERER MACHINERY INC., CEO
Mr. Jeff Cole, Weiss-Aug Co., Inc., Vice President of Operations
Mr. Dieter Weissenrieder, Weiss-Aug Co., Inc., President
Mrs. Elisabeth Weissenrieder-Bennis, Weiss-Aug Co., Inc., Executive Vice President
Mr. Mark Weissenrieder, Weiss-Aug Co., Inc., IT/Automation Manager

“We got way ahead of our competitors in the space.”

*Alois J. Rupp, CEO
BRUDERER MACHINERY INC.*

“At the end of the day, these presses were old,” says Weiss-Aug Vice President of Operations Jeff Cole, who Weissenrieder says lobbied the hardest for the new presses. “We were seeing premature tooling wear, and we were seeing inconsistency in part geometry. So, we realized that it was time to change.”

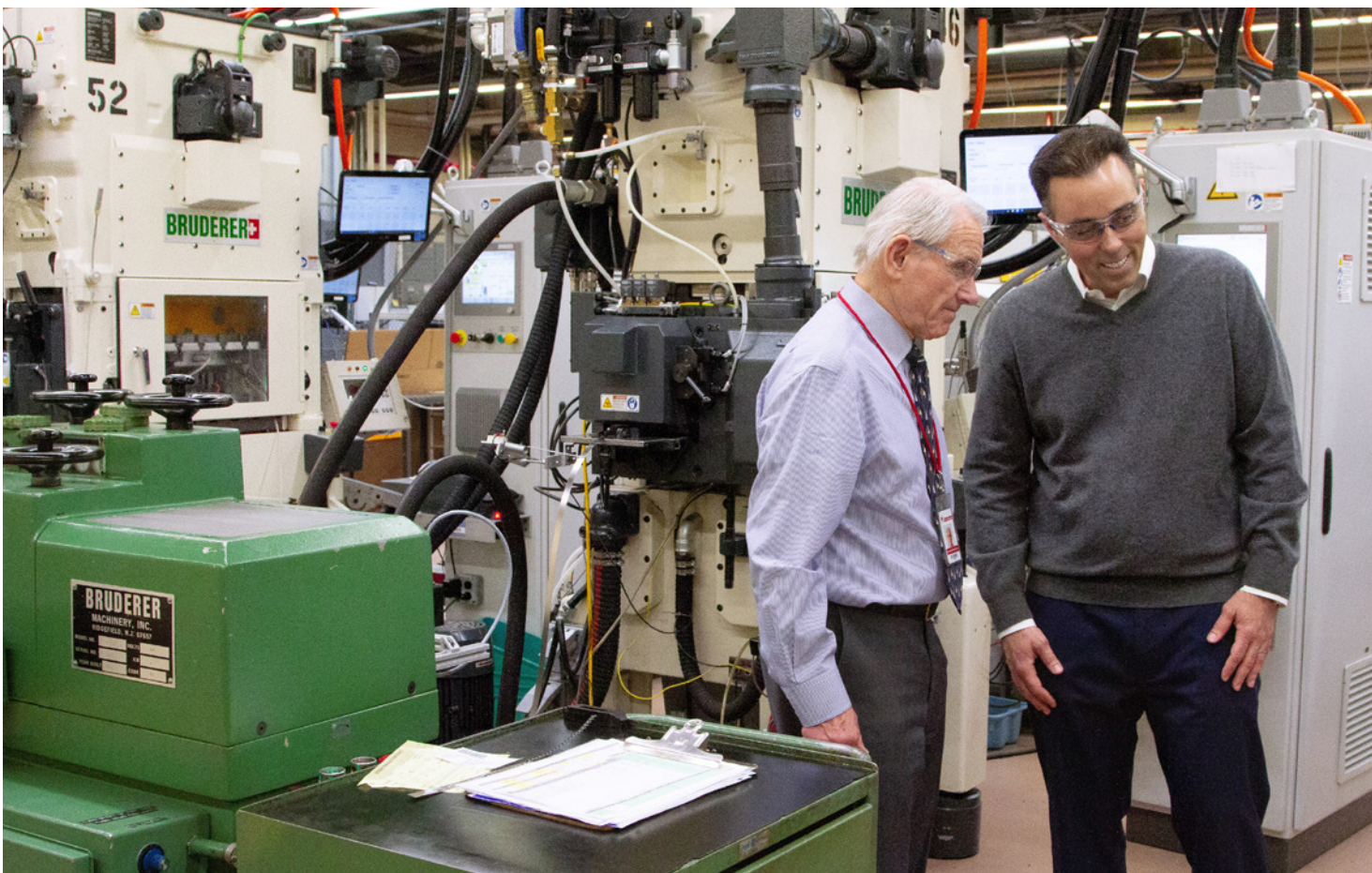
“In our case, we made the decision that, economically, it didn’t make any sense to rebuild these 20-ton machines. BRUDERER had incorporated significant technological advances in these new machines, and now that these machines are in production, the improvements in output and part consistency are astonishing.

BRUDERER Machinery Inc. President Alois J. Rupp says that even though he can maintain accuracy on rebuilt presses, the older machines can’t accommodate the new features that set newer technology apart. For that reason and others, the reconditioned machines didn’t make sense for Weiss-Aug.

“In some cases, we will rebuild our machines as it makes sense for certain products to do so” Rupp says. “In this particular case... we knew it wasn’t a good decision for him to do that.”

Weiss-Aug produces small, highly complex stamped parts that are rarely flat. Most parts are coined, formed and bent multiple times. The tolerances are extremely tight, many times down to ± 0.01 mm.

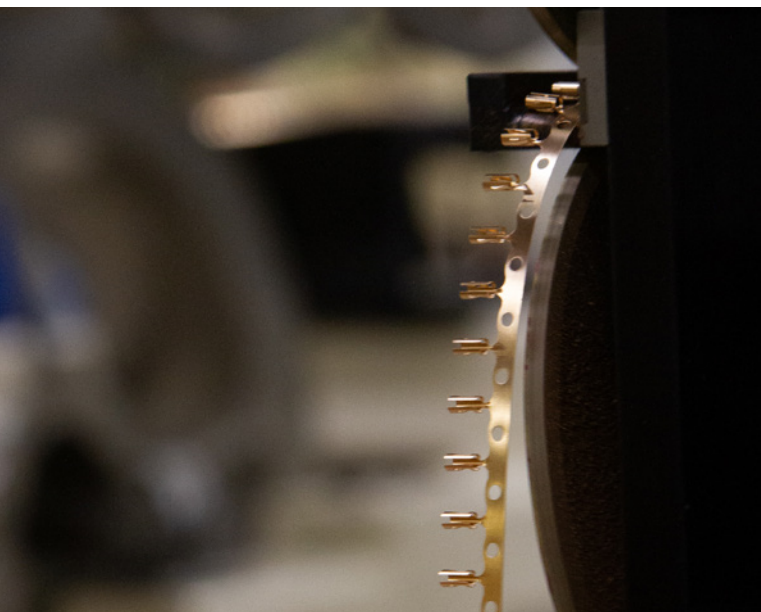
Parts are stamped in quantities of many millions. This kind of consistency cannot be expected from presses that have 80,000 to 90,000 production hours “on their back”. Because of zero defect requirements in today’s environment, consistency from the first part to the last part is mandatory. →



“When we were running the same dies making the same parts in the new BRUDERER presses, we couldn’t believe the improved consistency within production runs. Not only were we able to increase press speeds, but most of all the new machines reduced die maintenance. Dies also had to be adjusted less frequently, reducing downtime. In summary, productivity went up significantly,” Cole states.

As a contract stamper, specializing in small, intricate and high volume parts, Weiss-Aug uses many different types of materials. Material types range from Be Cu, Phosphor Bronze, Nickel, Stainless Steel and many exotic alloys.

Because of the competitive nature of manufacturing highly complex parts at high volumes, Weiss-Aug runs its presses at very high speeds. The design and construction of the BRUDERER presses allows that. Weiss-Aug runs many of their 20-ton BRUDERER presses at speeds of up to 1,700 strokes/minute. Cole states “BRUDERER presses are ideal for this kind of manufacturing.”



Zero defect – parts in perfection.

Because of the incredibly accurate construction of the machines, Cole states “consistence in manufacturing small, intricate parts is assured. Today customers require zero defect over millions of parts – something unheard of 20–30 years ago.” He states, that in today’s environment, he needs highly precise tooling, flawless material and excellent punch presses. He calls this the “three legged stool”. If one leg is missing, the entire process falls apart.

Designed to Last

Rupp says that his presses’ consistency originates with one key feature of his company’s presses: the mass counterbalance system that distributes the press’s forces more evenly throughout the machine, thereby maintaining the press’s stability at high speeds. The counterbalance system, which Egon Bruderer patented more than 60 years ago, represents a unique technology that the company still prides itself in.

“We didn’t realize it at the time, but it was a quantum leap,” says Rupp, whose company is based in Ridgefield, N.J., a 30-minute drive from Weiss-Aug. “We got way ahead of our competitors in the space. And to this day, the technology has come up, but it’s still not there yet. No one offers the same engineering principles that we do.”

“Our customers, they know. They run different machines. They know where they need the BRUDERER, and they know where they can get away with another brand.” Weissenrieder confirms that the reason for having bought BRUDERER presses for the past 45 years is “the latest technology incorporated in the design of the presses and its robust and accurate construction. The machines also retain their value over many years.”

Faster Setups, With Less Variation

One of the improvements of BRUDERER's new presses that surpasses its predecessors is the servo feeding system featured on the BSTA 200s.

At first, BRUDERER delivered the new presses to Weiss-Aug with mechanical feed systems. However, Weiss-Aug quickly determined that they wanted the servos instead – a decision that simultaneously increased setup speeds and decreased the person-to-person variability inherent in setups determined by operators' judgment rather than a servo drive's control system.

"Set up time is faster, almost 50%" Cole says. "The setup of a servo feed is very much automatic and foolproof. The parameters, that is stroke, pitch and pilot release which in the past were set manually, are now keyed in at the initial set up and then retained in the 'press library'. Not only does this cut set up time, but guarantees consistent set ups by eliminating personal preferences."

Technology: Worth the Investment

If anyone can appreciate the value of Weiss-Aug's investment in technology, it's Cole. The stamping industry veteran joined the company 25 years ago and has watched its commitment to technology increase steadily over that time. "Dieter has always been very supportive of buying the best technology," Cole says. "My plan is to continue to upgrade to new technology as we move forward."

In essence, the 200s give people, like Cole, incentive to continue the good fight of meeting zero-defect demands from customers who are also constantly asking for cheaper parts prices.

"The challenge, the tight tolerances, the parts that no one else wants to make," Cole says when asked what really excites him. "It's very satisfying as you stand in the press-room and watch those parts come off the press – all the brainpower that went into figuring out the tooling and making it all work." →



Technological investments offer the additional benefits of attracting new talent to the company. Cole says finding talent represents his biggest challenge today and having a company with the latest and best equipment money can buy including a great working environment gives him a chance to attract quality people.


Mutual Respect

The Weiss-Aug story follows a typical script, they have been BRUDERERS devotees for 45 years. In fact, the company has over 31 BRUDERER presses running in its 3 press rooms in New Jersey and its new plant in Apodaca, Mexico.

"He knows the business," Cole says of his boss. "That's why when I go to him to talk about capital investment, he knows what I'm talking about. He understands the business.

He knows we need precision equipment, cutting edge tooling and talented team members to be successful."

In that regard, BRUDERER considers Weiss-Aug one of its model customers – not just because they buy so many presses, but because the level of understanding the two companies share.

"We are focused on high precision, high volume," Rupp says. "Those are the two things that match with our products. Weiss-Aug is a perfect customer. They understand quality." "The important thing with Weiss-Aug and with all of our good customers, it's about a mutual benefit," Rupp adds. "That's where we do well with our customers. It has to be, or else it's a one-time sale or a short-lived relationship." 

"We are focused on high precision, high volume,"
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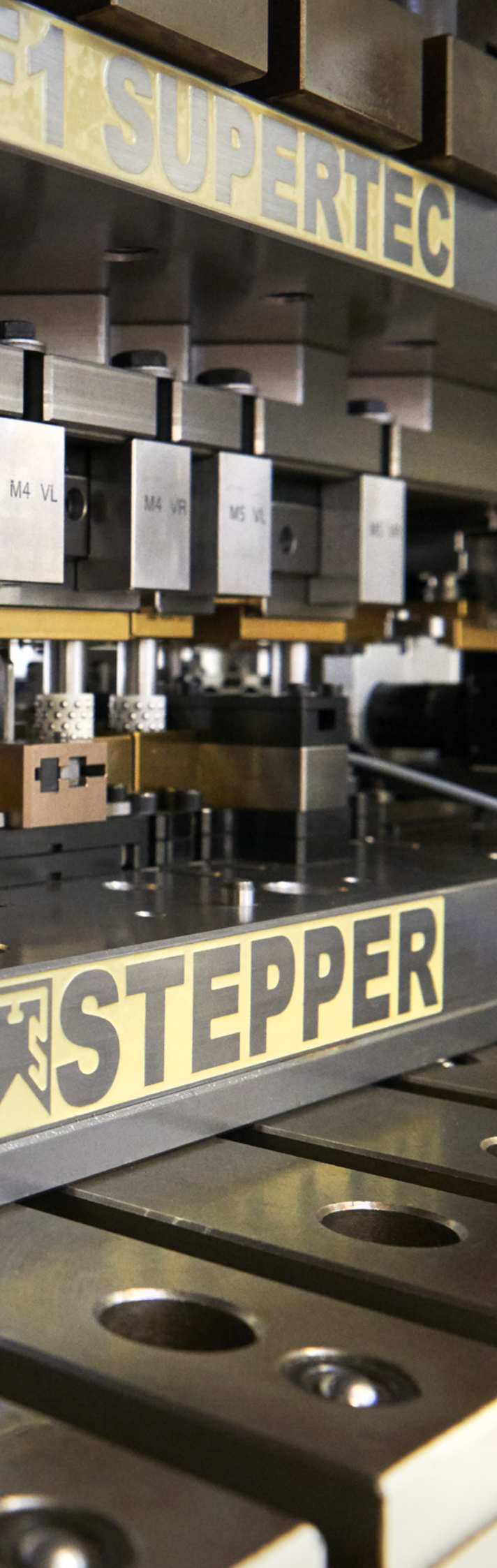
Close to BRUDERER USA,
in terms of location as well as quality
and service.



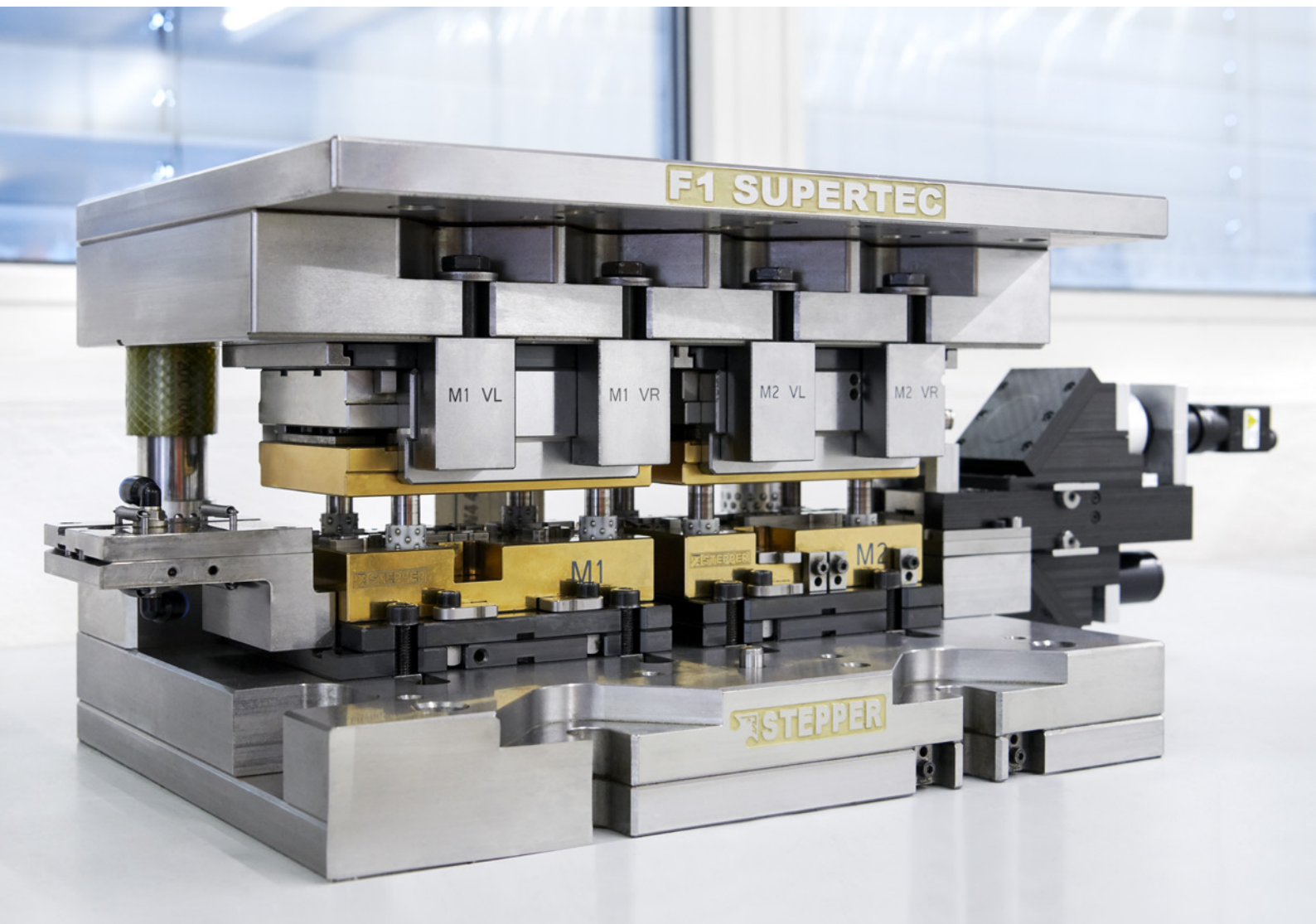


NEXT STEPS BY STEPPER.

Always one step ahead, together with BRUDERER high performance stamping presses.



With the customer every step of the way. Toolmaking has changed fundamentally over the past decades. Lead times, project times and the complexity of modern stamping tools are becoming more and more ambitious. One who paves the way and is a pioneer in the adoption of new technology is Stepper. As the global market leader in toolmaking, the industry leader from Pforzheim regularly scales new heights.



The F1 Supertec stamping tool – combining the ultimate in precision and productivity.

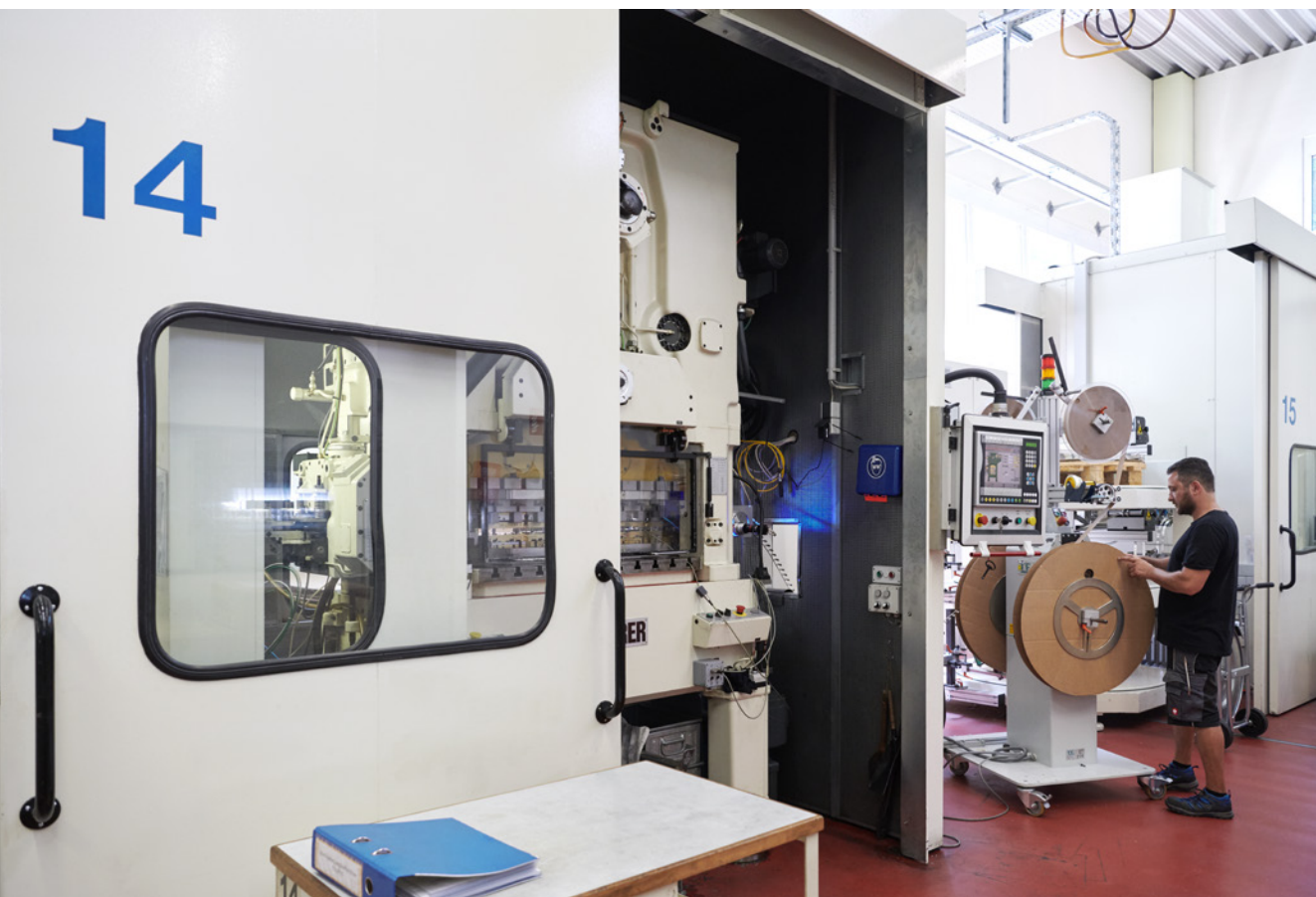


Imagine back in 1976, a stamping tool is clamped down on a BRUDERER high performance stamping press and taken into operation. The machine runs in three-shift operation at just under 1,000 strokes per minute. Together, the duo of stamping tool and press, toiling away continuously, will have produced 30 billion parts by today. Notably with the same stamping tool, on the same stamping press. This may sound like science fiction, but is in reality the result of the successful collaboration of two market leaders in their respective areas: BRUDERER and Stepper. A visit to Stepper in Pforzheim shows how stamping tools and complex components are made and what the advantages are of perfection down to the smallest detail.

Fritz Stepper, the founder of the company, revolutionised traditional toolmaking in the mid-sixties through modular technology, which over many decades has given the company a leading edge. His ingenious idea was based on individual modules taking on different tasks, such as stamping, bending or embossing, or indeed carrying out a combination of different tasks. The possibilities, i.e. the number of production operations, are only limited by the size of the tool loading area. →

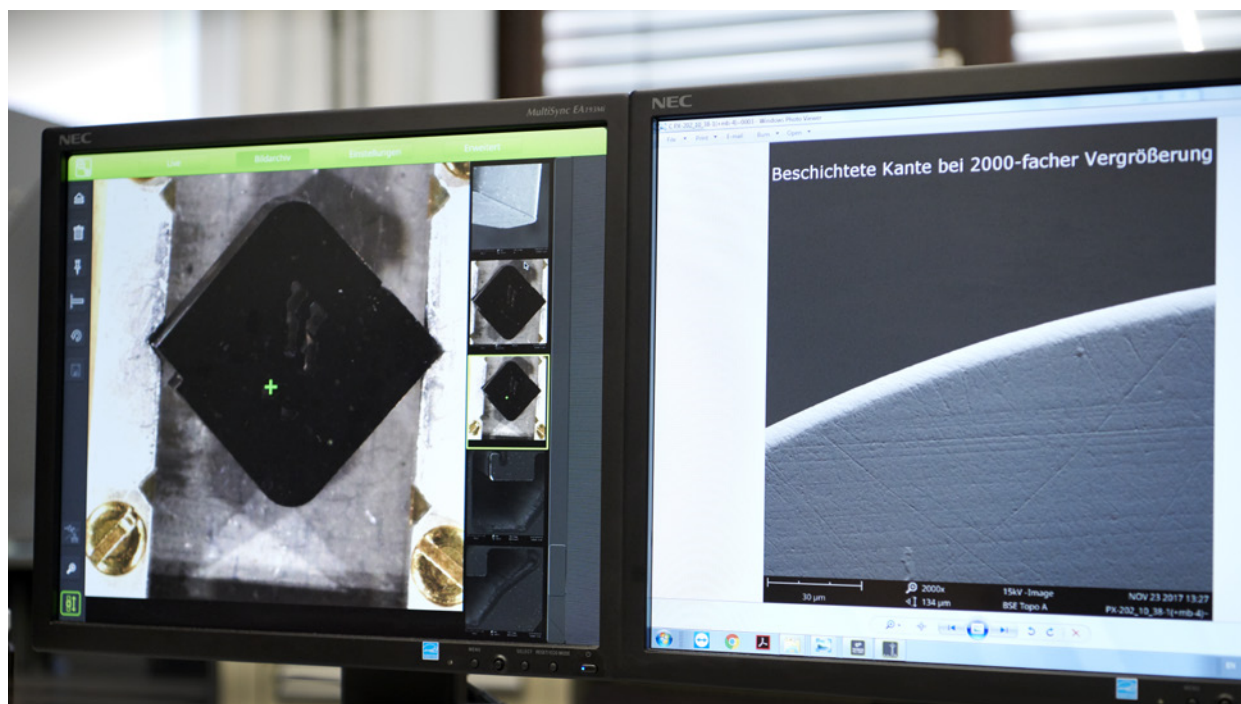
“We have recognised early on that we can be considerably more successful when seeking solutions with specialists in their area, than on our own and our partnership with BRUDERER started in the seventies and has been a real benefit for both of us.”

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



Rethinking processes to optimise working production methods.

Innovations
in surface quality.



By using different modules, various parts can be manufactured on the same stamping tool. A further advantage: the module change is completed within a few seconds. This inventive spirit, combined with decades of experience, is the reason for Stepper's outstanding reputation world-wide. Development and training are thus important topics within Stepper's company structure. "On the development front, we don't restrict ourselves to our own team. We regularly have development teams of our business associates on site and together search for improvements and new solutions. Our research is supported by various universities, such as the Pforzheim University of Applied Sciences, and institutes as well as companies such as BRUDERER. Thus in the course of time we have developed the ability to further develop solutions which have worked in an experimental setup at a university or research institute and bring those projects to industrial production stage." Stepper also shows above-average commitment for the training of young professionals. The toolmaker has around 200 employees, of which nearly 40 are apprentices in training. This is a substantial proportion not just for this sector, but across all industries. The apprenticeships on offer include the professions of Precision Mechanic, Technical Product Designer and Stamping and Forming Mechanic.

This combined expertise leads to solutions which set Stepper apart from its competitors world-wide. One of their main distinguishing features is the special surface coating technology which Stepper uses for their tools. "With the Stepper diamond coating, parts can be manufactured in larger numbers, in a shorter time and with less tooling wear than with conventional carbide tools," explains Michael Stepper. "The natural hardness of the carbide at 1,500 HV is not sufficient for a long tool service life. Therefore, using our own equipment, we have developed special coatings which allow us to increase the surface hardness by a factor of three. With this coating, in an ideal case we can improve the service life of a stamping tool tenfold. In order to make sure that we have the optimum coating for every application, we are fully conversant with all relevant technologies, such as physical vapour deposition (PVD), chemical vapour deposition (CVD) or plasma laser deposition (PLD)." →



Raimund Ochs, Director and Board Member at
Fritz Stepper GmbH & Co. KG

That's why Stepper's motto is: the new dimension of stamping technology.

“Over 90 percent of our orders relate to the contact parts business,” he adds. This includes the core segments automotive and medical technology, but also white and brown goods, from shavers and washing machines through to mobile phones and computers. “The field of applications is broad and the requirements are becoming increasingly complex. Particularly in the automotive contacts business.” Desiring to combine several processing steps with different materials in one operation, Stepper developed their modular tools into combined stamping tools for single-stage processing. “This greatly reduces production times, and expensive storage costs can be avoided,” Stepper expounds. “The three or four-stage production, which includes the forming and assembly of three materials or components, is one of the showpieces of our technology. Where different variants of a part need to be produced, of course the modular design comes into its own. We have tools which can be used for up to 30 different variants of a component. The increasing miniaturisation is only one of many challenges we still face.”


The smaller the contacts, the more complex the forming and the more elaborate the assembly of components per stamping operation, the bigger is the requirement for length of tool and tool loading area in the stamping press. BRUDERER has recognised this and has extended the bed length for various models of their BSTA series.

“The length of the tool loading area is now more than double that of our earlier BRUDERER stamping presses. For many applications, a tool loading area of, for example, 1,100 mm is no longer sufficient,” Stepper says. “Therefore we now have BRUDERER presses with bed lengths of up to 1,800 mm and, for example, at BSTA 510 with 1,250 mm tool loading area”.

As Stepper is known for their expertise in coating and product development, the toolmaker receives enquiries from around the world for problems which no other company would be able to solve. Stepping up to the plate, some time ago Stepper was able to develop a stamping tool for a four-part component which had to withstand centrifugal forces of up to 85 G when in use. “No other manufacturer dared to

take this on,” remembers Michael Stepper. “Although the customer conducted tests successfully, no manufacturer would commit to serial production. Until he contacted us,” he adds with a smile. Within a few months, thanks to hard work and dedication, a stamping tool was developed which not only fulfilled all the requirements, but was also able to deliver the requested quantities of parts to be produced. “The stamping tool consists of 5,000 individual parts and is a true masterpiece. It shows what we understand by F1 Supertec: the best available material, in this case the alloy out of which the tool is made, in connection with the best technologies for manufacturing the stamping tool. And last but not least a seamless control. Using our own scanning electron microscope, we can inspect the result with a 100,000-fold magnification down to one hundredth μm .”

That is reason enough for many customers to not only order a stamping tool from Stepper, but also to contract out the production of certain components to the toolmaker. “For really complex jobs, it gives the customer peace of mind to receive precision parts from the word go. We either take over production of the whole lot, or our stamping room provides the initial batches until the customer’s own production is up and running reliably. This is of course also in our interest as with our own stamping room we have the possibility to thoroughly test new materials and new solutions in-house. If it needs be, for a whole year or until we can be certain we’re ready to introduce a new development to the market.”

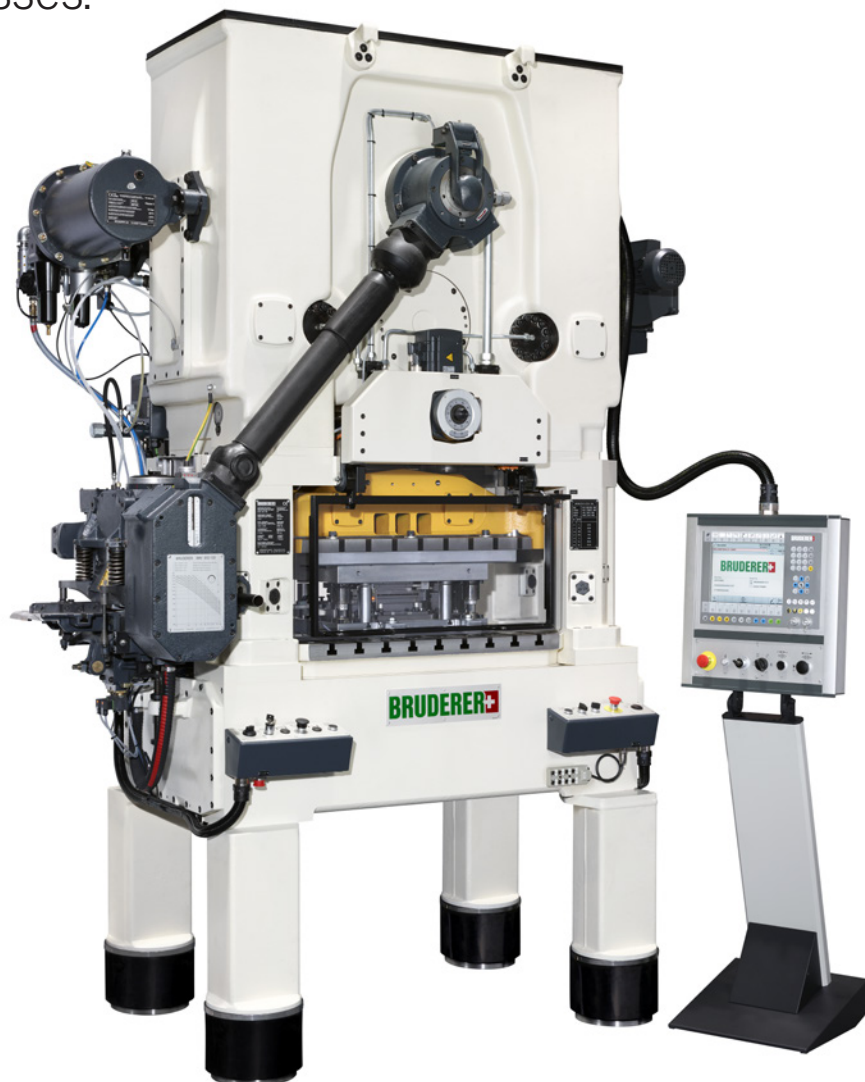
The latest highlights from Stepper and its associate BRUDERER will be on show from 5th to 8th November 2019 at Blech-expo in Stuttgart, on the BRUDERER stand 6308 in hall 6. Following the motto “The ultimate in availability through state-of-the-art technology”, BRUDERER and Stepper are going to demonstrate at the international trade fair in Germany what is already possible today using an ideal combination of high-performance stamping press and precision stamping tool. 

Desiring to combine several processing steps with different materials in one operation, Stepper developed their modular tools into combined stamping tools for single-stage processing. "This greatly reduces production times, and expensive storage costs can be avoided."



INCREASING VALUE CREATION.

With BRUDERER retrofitted automatic stamping presses.



Example of a BRUDERER retrofit -
a BSTA 50R-95 with B2 control and
a BBV 202/120 roll feed.

The changing economic climate is leading to many businesses having to review their cost structures and their investments in means of production. With its retrofit solutions, BRUDERER provides an interesting alternative. Here we present two businesses who are making the most of this retrofit proposition.

With various trade conflicts on the boil and the endless Brexit negotiations, the global economy is going through a period of turbulence at the moment that is doing nothing to calm the economic climate. Many businesses are not managing to generate growth at present, while markets continue to become more global – as does the competition. Companies are being confronted with significant fluctuations in order intake and a price dynamic which is influenced by the presence of a variety of other suppliers. The only way for stamping and tooling firms to be successful in the face of increasing competition is to further develop their own competencies while at the same time improving their cost efficiency.

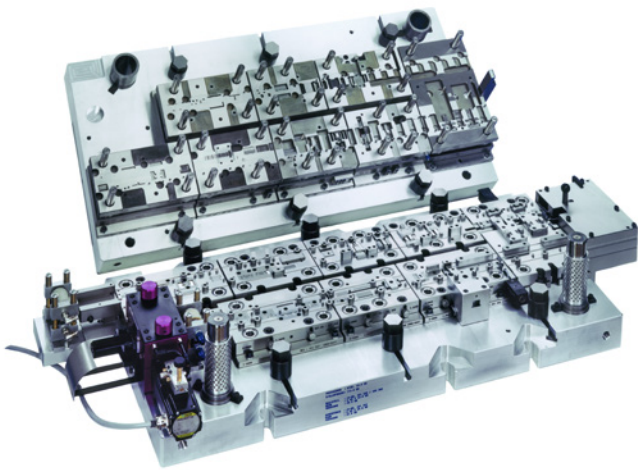
This is where BRUDERER with its high-performance stamping presses has been able to provide an attractive proposition for a number of years now when it comes to increasing the value creation potential of investment in stamping technology. The magic word is retrofitting, or the comprehensive revision of

older BRUDERER automatic stamping presses. Many firms are extolling the virtues of overhauling BRUDERER machines, but a genuine retrofit with a complete mechanical and electrical revision with original parts and quality can only be provided by BRUDERER. Furthermore, customers have the choice of having their own BRUDERER presses overhauled by BRUDERER, or acquiring a used model that has been modernised.

“A retrofitted original BRUDERER high-performance stamping press has the very latest technology both mechanically and in terms of controlling,” explains BRUDERER CEO Andreas Fischer. “Additionally, the mechanical feed can be replaced by servo feed during the revision. Furthermore, today’s complex tool technology requires ever longer tool loading areas, so for various models, we also offer extensions to those parts. A customer who chooses a retrofit gets a completely revised machine with the latest technology – all at an attractive price.” →



Hans-Peter Christmann, owner and CEO of hapema GmbH



Modular progressive tools – the right solution for every product idea.

hapema – precision metalworking

A company that is currently expanding its production capacities by more than 2,500 m² and adding a new, modern logistics centre is hapema GmbH in the municipality of Engelsbrand, near Pforzheim.

The name hapema has been synonymous for over 30 years now with innovative solutions for precision tooling and stamping technology. hapema's high-quality precision stamped parts are used on a daily basis in various sectors. Well-established firms in the automotive, electronics and electrical industries and customers from the highly-demanding medical technology sector all rely on their solutions, with a portfolio that comprises punch scraps, patented press-fit zones (including the EloPin), micro stamping parts, stamping parts with bond surface (such as AISi, NiNiP, Bond-Ni, Bond-Au and NiPdAu), stamping parts with wire and contact riveting, round contacts (coined/stamped or rolled), multi-component stamping parts, oversprings, drawn parts and prototypes.

To meet the ever higher demands of the company's customer base, founder Hans-Peter Christmann has chosen to steadily increase the workforce which currently sits at around 80 employees. "The demands in terms of the precision of stamped parts and tools get more complex every day due to global competition," Christmann says. To maintain a position at the forefront of the market, hapema has chosen to rely on BRUDERER automatic stamping presses.

Another aspect that is forever increasing in importance is to integrate committed new young employees, with hapema currently training 20 apprentices in various trades. "Promoting these talents and creating ties between them and the company is our main aim," Christmann adds, which is why hapema gets into contact with schools in the region at an early stage to recruit youngsters for one of the exciting trades that make up their business. →

"The demands in terms of the precision of stamped parts and tools get more complex every day due to global competition."

Hans-Peter Christmann, founder hapema GmbH



hapema-made ELO-pin insertion zones.



Precision and accuracy are watchwords at hapema, as shown here in the stamping production area.

Leicht Stanzautomation GmbH

Another company which is thoroughly focused on the importance of recruiting qualified and interested young employees is Leicht Stanzautomation GmbH, who specialise in peripheral equipment for stamping and metal-forming technology, profiling and extrusion technology, semi-manufactured products and injection moulding and assembly technology. Their customer base includes suppliers from the automotive, electrical and electronics industries as well as aerospace and medical technology, not to mention the furniture industry and manufacturers of white goods. Founder and CEO Jürgen Leicht also sees qualified labour as one of the company's biggest challenges. "Even in these economically uncertain times, it's not so much the technical solutions that are shaping the future.

The original retrofit alternative that BRUDERER offers is one of the best examples of how customers can generate value creation potential. We can see it as well with our peripheral equipment, but what you really need are the right partners and first and foremost the right employees."

Two years ago therefore, Leicht analysed the situation and had an ultra-modern new factory built in Ölbrenn-Dürren near to Pforzheim. "We are just five kilometres away from the A8 motorway and yet we have no less than 2,400m² at our disposal," he says. "It saves time for customers and

employees alike, and you can get to Stuttgart airport in just 30 minutes, which is a crucial factor in one of the European regions which has the most traffic." The new production areas are impressive to say the least, with bright, pleasant rooms and production areas where new ideas on series production can come to fruition in a relaxed working atmosphere. "Team-building with flat hierarchies is something that we set great store by," Leicht continues. "Everyone takes responsibility and therefore has a duty to everyone else. This team spirit helps us to constantly generate new ideas which will be of benefit to our customers. Take safety in the workplace for example. Since there is no central idea of value creation as far as this is concerned, it can tend to get overlooked in a lot of areas. We on the other hand think of solutions that will guarantee more safety for the user and yet at the same time improve the work processes and the access to technology. At Blechexpo in Stuttgart, we will be presenting some of these ideas – along with a BRUDERER retrofitted BSTA 80-97B2 automatic stamping press – to our trade colleagues."

Anyone looking to get comprehensive information on the entire process chain of cold-forming sheet-metal fabrication and the related thermal or mechanical cutting, bonding and joining technology should definitely make a date in their diaries. 🇨🇭

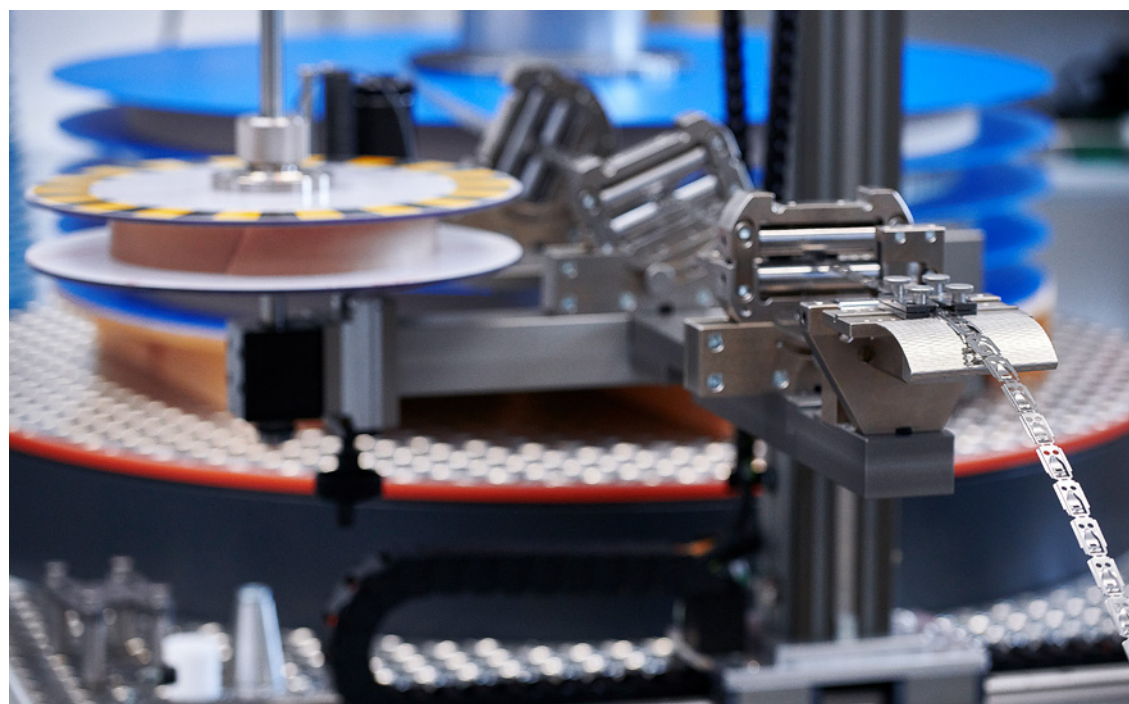
Jürgen Leicht,
owner and CEO of Leicht Stanzautomation GmbH





The whole is only as good as the sum of the parts...
surface and profile grinding production.

Making the most of the latest
in winding technology.



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