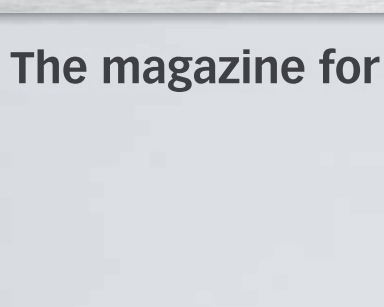
BRUDERER

PRECISION – SWISS MADE

STAMPER 1/13

The magazine for high-performance stamping technology



ARaymond – press for success.

French company ARaymond has been enjoying success at the touch of a button for five generations now. Their range of products has grown over the years, and production capacities have also increased thanks to the expansion of their in-house punching department equipped with BRUDERER fully-automated stamping presses.

P. 3

WAASNER – precision-driven.

The company is based in Forchheim but has established a reputation well beyond the borders of Germany for its laminates for transformers and electrical motors. Many automotive suppliers and engine manufacturers have come to rely on WAASNER's ultra-precision products – made by BRUDERER fully-automated stamping presses.

P. 4/5

Starting your career with BRUDERER.

BRUDERER has always attached great importance to the in-house training of its employees. We currently offer five different types of apprenticeship, with our trainees able to display the skills that they had learnt at the OBA career information fair in St. Gallen.

P. 8

Setting the bar even higher – BRUDERER at the Blechexpo 2013.

It is that time of year again. November sees the Blechexpo and Schweisstec expert trade fairs taking over the Landesmesse exhibition area in Stuttgart. The two fairs are held every two years and are the world's only events to showcase the complementary technologies of sheet metal processing and joining. BRUDERER will of course be there, with brand new technology on show.

With over 800 exhibitors from more than 30 countries and an overall exhibition area of 85,000 m², the fairs give the sector a chance to show the world what it has to offer. A well-established company such as BRUDERER is always present of course, and the highlight at the 11th Blechexpo will be the BSTA 810-180 high-performance fully automated stamping press. The BSTA 810 range has enjoyed great success since its launch four years ago and garnered significant positive feedback from customers. This is only to be expected, since the BRUDERER BSTA 810-180 high-performance fully automated stamping press combines masterful precision mechanics and ultra-modern electronics with trail-blazing innovation, whilst maintaining a unique level of cost-effectiveness. In terms of drive mechanics, the BSTA 810-180 can rely on tried and trusted BRUDERER technology. The transverse shaft arrangement and power transmission featuring an exceptional lever system provide high levels of durability as well as the ultimate in precision. Another special feature is that the hardened spindles and nuts in the ram adjustment system are set up outside the power flow. This enables ultra-precise adjustments to be made and ensures that there is always the optimum ram height. BSTAs are known for their various qualities, and the adaptability of the BSTA 810 range makes it ideal for a whole host of different sectors of the high-performance stamping industry. They can be put to all kinds of industrial uses, not only stamping steel sheets and semi-conductors but also for flat stamping thicker strip materials. It was the logical step therefore to add a new model to the existing programme.

Come and see us at the Blechexpo in Stuttgart from 5 – 8 November 2013, Hall 6, Stand 6408-1.

With manufacturing processes becoming ever more complex, stamping tools and feed systems need to be more flexible than ever. The BSTA 810 range features the latest in BRUDERER technology with a modular feed concept, vertical machine doors and much more besides, enabling them to react even more effectively to changes in the market. The brand new BSTA 810-180 also meets the urgent need of customers for ever bigger bed lengths, putting BRUDERER ahead of the competition. The BSTA 810-180 stand out from the crowd in the market with a stamping force of 810kN and a bed length of 1800 mm including ram height adjustment in coupled mode.

BRUDERER at trade shows 2013 / 2014

Blechexpo (Germany)	05.11. - 08.11.2013
FABTECH (USA)	18.11. - 21.11.2013
IMTEX Forming (India)	23.01. - 28.01.2014
Southern Manufacturing (UK)	12.02. - 13.02.2014
MACH (UK)	07.04. - 11.04.2014
SIMTOS (Korea)	09.04. - 13.04.2014

The machine is yet another demonstration of the innovative potential of BRUDERER. Customers in the automotive, electrical engineering and watchmaking industries and in the medical and food and beverage sectors around the world have come to rely on the Swiss company that was established back in 1943. The new BSTA 810-180 will help to enhance BRUDERER's reputation and contribute to a further increase in sales for the well-respected 810 range. And should you wish to see the BSTA at close quarters, then come along to the BRUDERER stand at the Blechexpo in Stuttgart from 5 – 8 November 2013 (Hall 6/Stand 6408-1).

EDITORIAL

Shorter and longer...

In our efforts to improve efficiency, we shorten and streamline everything that we can. Where once business partners received a letter, now a short mail does the trick. Work processes are optimised to achieve their aims more quickly, both in terms of machines and in the office. In stamping, this can be seen in the development of increasingly more complex tools which combine a growing number of tools. "All in one" is becoming a sine qua non.

One of the consequences of this is that the tool-loading areas have to "grow" accordingly, and this is a trend that we at BRUDERER picked up on a good few years ago already. We increased the bed length of the BSTA 510 from 110 cm to 125 cm then replaced the BSTA 250-75 with the BSTA 280-88 and increased the tool area on the BSTA 1600 from 181 cm to 220 cm. The next and certainly not the last innovation in this field is also coming very soon. At the Blechexpo 2013, we will be exhibiting the latest BSTA 810 with a tool-loading area of 180 cm, giving you another good reason to come and visit our stand in Stuttgart!

Gebrüder WAASNER GmbH in Forchheim, Germany have come to rely on BRUDERER's tried and tested stamping technology for their complex tools. You can read more about this fascinating company in the main article in this edition of STAMPER. We also feature portraits of other BRUDERER customers from Germany, France and Italy.

The quality and reputation that the BRUDERER high-performance fully-automated stamping presses enjoy have not come about by chance. A key element in our success throughout the world is the expertise of our workforce. Finding qualified employees is getting ever more difficult, and this is also the case in Switzerland. What is even more important is to train young professionals and give them perspectives for the future, which is why BRUDERER offers its trainees further employment within the company once they have successfully completed their training, regardless of the economic climate. At the same time, we encourage them to continue with their training and support them in project work and by offering work experience positions. It is our way on investing in the future – both theirs and ours together, and one that we also share with you, our valued customers and business partners.

Kind regards,

Andreas Fischer CEO

Imprint:
Publisher: BRUDERER AG, CH-9320 Frasnacht
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Project: BRUDERER AG, CH-9320 Frasnacht, Kieweg und Freiermuth Werbeagentur GmbH
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Graphics/Layout: Kieweg und Freiermuth Werbeagentur GmbH

Photography: p.3: ARaymond Frankreich; p.1,4,5: www.ellensohn-fotografie.com; p.6: Davide Provolo; p.7: www.krueger-photographie.com & Diehl Metal Applications GmbH; p.8: www.hansjerrygross.ch; all other pictures: BRUDERER AG

Five generations – all business-focused, all looking to the future.

ARaymond was founded almost 150 years ago by Albert-Pierre Raymond. The company initially produced various fixing elements for the shoe and glove industries. The first patent which Albert-Pierre Raymond registered was for a diamond clip, also known as a T-clip, which was designed to replace buttonholes in gloves which generated high production costs. 20 years later this led him to a revolutionary discovery – that of the press stud.

The two metal parts which clip together was a work of genius, and this new variation on the button turned out to be a global success. Up until 1999, ARaymond produced accessories for some of the most famous names in the fashion industry. In 1936, the company began supplying a new series of reinforced steel clips for the automotive industry. They also went into the field of injection moulding and developed a series of plastic injection fixtures. This wide variety of products enabled them to branch out into the general industry and broaden their market. Be it with patents, innovations, internationalisation, the development of design offices or variations in market positioning, each generation contributed to strengthening the company throughout the 20th century by means of new innovations and investments. Over the years, ARaymond, historically established in France and Germany, has built up a presence in a whole host of different countries in Europe and around the world: Spain, Italy, the United States, the United Kingdom, Eastern Europe, Brazil, China, Japan, Turkey, Korea, India, Russia, Canada, Morocco and most recently Singapore and Thailand. In 2008, ARaymond set out a strategic global plan and decided to create an overall organisation at the same time. This was divided into various sectors, namely Automotive, Truck, Industrial, Energy and Life.

“A true revolution for our stamping room.”

New capacities for production.
In December 2011, ARaymond acquired a BRUDERER BSTA 810-145 high-performance fully-automated stamping press with press control type B2. “A true revolution for our stamping room,” says Luc Oudart, head of the tool design department. “The new fully-automated stamping press achieves speeds of 1000 strokes per minute, which is ten times the output of our previous presses. Not only can it produce parts more quickly, it also enables us to change tools more quickly, keeping down times to a minimum and improving cycle times,” explains Luc Oudart. “With the geometry and the precision of the BRUDERER fully-automated stamping press and its dynamic ram insertion depth corrector, we have managed to significantly reduce tool maintenance costs while at the same time achieving higher stroke rates.”

These increased stroke rates have enabled the production team to also re-evaluate the peripheral devices used for the discharge of the good parts and of the stamped waste and implement new technology to improve the degree of automation. The production line now runs constantly. “The integration of the various monitoring and steering systems in the B2 control system means that this fully-automated stamping press is able to operate around the clock,” says Pascal Mollard, production manager.

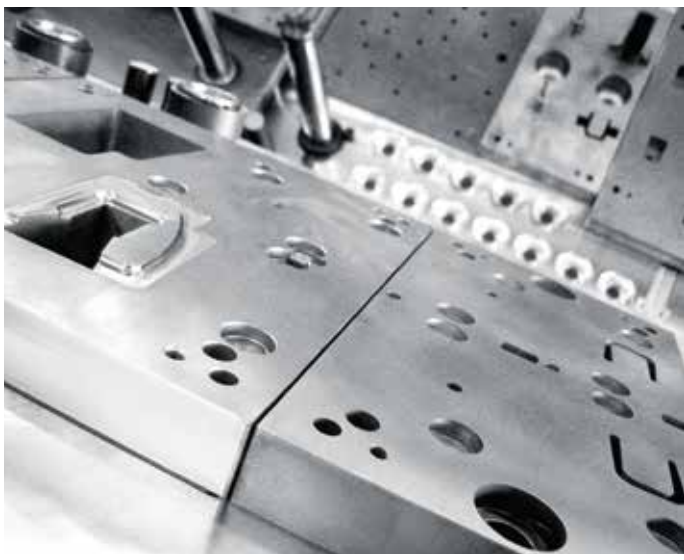
Working together on an international level.
The introduction of the BRUDERER BSTA 810-145 fully-automated stamping press with press control type B2 has enabled the French metal team to develop new working methods for high-performance stamping and bending. Some months later, the factory in Hamilton, Ontario also adopted the system in 2013, installing a similar fully-automated stamping press. “The cooperation was ideal,” enthuses Matt McDonald, Director of ARaymond Tinnerman Manufacturing in Hamilton. “The French teams from Grenoble worked together with our engineers and users, exchanged knowledge and experiences, contributed to the choice of components and explained how the new technology would affect our production process. The biggest challenge was producing a tool in Hamilton based on a 3D model supplied by our French colleagues which they had made themselves using DAO.”

“This new form of cooperation between the ARaymond group of companies was enthusiastically welcomed,” adds Luc Oudart. “Our engineers and technicians appreciated the qualities that this machine has to offer right from the off. “Working together with the team in Hamilton also gave them the feeling that they had contributed to something that they could be proud of. Strong ties were created between the two sides of the Atlantic.”

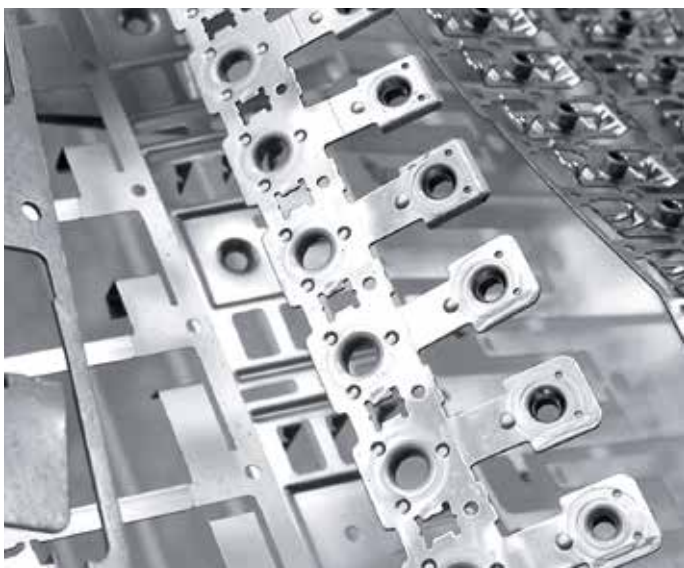
Well-equipped to meet the challenges of the future.
The acquisition of a first BRUDERER fully-automated stamping press has given the ARaymond metal team access to new manufacturing technology which will enable them to take on new challenges. ARaymond plans to use this technology in other areas of production and has purchased a new BSTA 1250-181 with press control type B2 at the start of the year. This fully-automated stamping press has a bed length of 1810 mm and can take on longer tools. “This means that more complex parts with additional functions can be manufactured,” explains Luc Oudart. “Thus we are well equipped to meet the increasing future demands of our customer base.”

The technology of connections. Exchanges of experiences are a real priority at ARaymond.

With an eye for detail. Tools from ARaymond.



Fixing systems – stamped strips with sophisticated technology.



WAASNER – precision series production making the drives of the future.

WAASNER is a well-known and trusted name among suppliers and engine manufacturers in the automotive industry. For over 60 years now, the company from Forchheim in Germany has been producing laminates for transformers and electric motors designed to meet the utmost demands. And for many of those years, WAASNER has been relying on the stamping technology of BRUDERER as part of a clear strategy and one of the reasons why the family-run business enjoys such a good reputation.

Oberfranken is a region in South-Eastern Germany known for its beautiful countryside. It is also popular with a number of manufacturers of high-performance electric motors for the automotive industry, this becomes clear when visiting the Gebrüder WAASNER GmbH, just off the A73 motorway between Nuremberg and Bamberg. The company has two locations in Forchheim where it produces traditional laminates for transformers as well as client-specific solutions for drive engineering.

Another reason that makes WAASNER stand out from the crowd is its business model. Right from the very beginning, the company has focused on the strengths of the family itself. What started out with two brothers is now into its third generation and as successful as ever. In early 2013, Christian and Rolf-Dietrich Waasner, the two sons of the original founder, handed over the running of the business to their own sons. Dr Michael Waasner, who is now the new sole CEO, and Simon Waasner, member of the extended management team, with power of attorney, have both been at the company for a number of years and know the business inside out.

A strong team. From left to right: Dr Ulrich Abele, Dr Michael Waasner, Christian Waasner, Michael Kummer, Thomas Komander, Simon Waasner and Rolf-Dietrich Waasner.

WAASNER: One family's success story.

The history of WAASNER GmbH is also the story of a particular range of products. The company was founded as Electromechanical Workshops in Schlüsselfeld in 1946 by brothers Kurt and Bruno Waasner. They started out repairing radios but soon discovered a new area of business when they realised that there was a real need for transformer laminates. WAASNER has built up its electric motor and transformer business over three generations, and since the company moved into larger premises in nearby Forchheim, it has continued to expand. In 1973, it became Gebrüder WAASNER Elektrotechnische Fabrik GmbH and a year later they acquired their first BRUDERER stamping press. The company continued to expand and develop, and a new factory was built in 2007 to the south of Forchheim, representing a determined and courageous step towards the future. Further expansion came about in 2011 with over 5,000 m² added and equipped exclusively with large BRUDERER high-performance fully-automated stamping presses. These enormous investments, running into tens of millions of euros, saw WAASNER blaze a trail in terms of high-quality series production in the automotive sector – without perfect harmony between fully-automated stamping presses, tools and of course the human element, the kind of geometric accuracy that is required in this case simply cannot be achieved.

Gebrüder WAASNER – facts and figures:

- Founded: 1946
- Location: Forchheim/Oberfranken
- Two factories stretching over 75,000 m²
- Family-run (third generation)
- 440 employees
- 31 apprentices in training
- DIN ISO 14001, DIN ISO 9001 and ISO / TS 16949 certification
- 37 BRUDERER fully-automated stamping presses in use

WAASNER currently process laminations in 18 different types of material, in various strengths and variations, using 37 BRUDERER fully-automated stamping presses with capacity ranges of 25 – 250 tonnes. This enables the company to produce everything that is needed for drive technology. In terms of small-quantity production, this ranges from loose metal sheets to sealed packages in which the customer then has to insert the magnets and the winding. Package stamping technology is used for large series production. The parts are caulked directly in the tool in the same operation. Parallelism of the ram, the precision of the BDC and the ram adjustment during operation are crucial to this process. In the business sector of drive technology, WAASNER focuses exclusively on designing special solutions for its core European markets, in particular Germany, and for good reason – the conventional IEC standard which is also offered in this sector is quite simply not attractive enough for production in Europe since it cannot compete with cheap imports from Asia. The WAASNER management team is nevertheless convinced that many customers are determined to stand out from the crowd by means of individual solutions, thus making their purchasers remain even more loyal.

Solutions for the most demanding of tasks.

Since WAASNER can construct even complex tools in house, they are invariably able to complete the most demanding of tasks. Of a total of 440 employees, 42 work exclusively in tool-making, having acquired the necessary expertise through long years of internal training and teaching. "Really well-trained tool-makers are a rare commodity," explains Rolf-Dietrich Waasner, who himself is a qualified engineer. "Even qualified tool-makers need one to two years as a rule to be able to handle the more complex tasks that we entrust them with. It's a big investment on our part, and it makes it all the more disappointing if any of them then move on somewhere else. This is why we look for new employees primarily in the local area, where we can be sure that we are dealing with people who have roots with their families." This general lack of qualified labour has led WAASNER to set great store not only in the constant training and further education of its employees but also the training of apprentices. 31 young professionals are currently being trained, and in 2012 alone 14 new trainees were taken on. Little wonder therefore that it is not only management who can refer back to a great family tradition, but also many of the employees, many of whom are already representing the third generation to have worked for the company.

An investment that pays dividends – the new production site in Forchheim.

Precision at the highest level, with tools developed and built in-house.

Quality assurance is a core element of WAASNER's success.

With a bed length of 2700 mm, the BSTA 2500 fully-automated stamping press has plenty of room for long tools.

The importance of well-trained workers to provide optimum results in terms of series production is well illustrated by the current example of the production of rotor and stator stacks for the electro-mechanical steering of a German vehicle manufacturer. The tool which WAASNER produced in-house for this purpose is impressive enough on paper already. It measures some 2.6 metres, weighs 8 tonnes and when used in conjunction with a BSTA 2500 high-performance fully-automated stamping press, it can produce six-part falling, six-part turning and six-part packaging on two tracks – at carrier widths of just 0.3 mm and a sheet thickness of a mere 0.5 mm. Despite this reduced material strength, the resistance of the material needs to be strong enough not to crack under the strain it endures. For a volume of almost one million parts a year, this is a real challenge, since no producer can allow itself to manufacture steering components that fail, and to prevent this from happening, quality control certainly has a major role to play during manufacture.

Trust is good, checking is even better.
Quality assurance in series production is one of the governing criteria for car manufacturers and their suppliers. This is typified for example by the production of components for fuel pump drives which are another element of WAASNER's broad product spectrum. The company produces some 5 million of them a year on two BRUDERER fully-automated stamping presses, and all at the same high quality, since WAASNER are able to check every part one hundred per cent for flatness, parallelism, concentricity and package height right after the stamping process. The exact criteria required are defined in advance with the customer, and every work piece goes through the same exacting checking process. Only when the green light has been given overall can the product be packed and sent off to the customer, meaning that quality assurance is simply another part of the press line.

Another example of this is a stepper motor which is 3.5 mm high and used in rear-view mirrors in cars. WAASNER makes some 16 million of these each year. Once the customer processes them further on site, a bobbin is automatically fed into the component. Should the package height fluctuate even minimally during this process, the customer's production line will come to a standstill. "That has yet to happen even once," says technical director Dr Ulrich Abele proudly. "Ensuring quality in series production is the most important thing when it comes to fully-automated lines. Quite often it's no longer about the component itself. Only when the entire line, from the fully-automated stamping press and the tool, right up to the inspection and QA test , is successfully completed, can you really be sure that you are not in for an unpleasant surprise in the production process. Many customers who come to visit us see our BRUDERER machinery and take a look at the specification manual. All that is left for us to do, is to prove that we have decent inspection protocols."

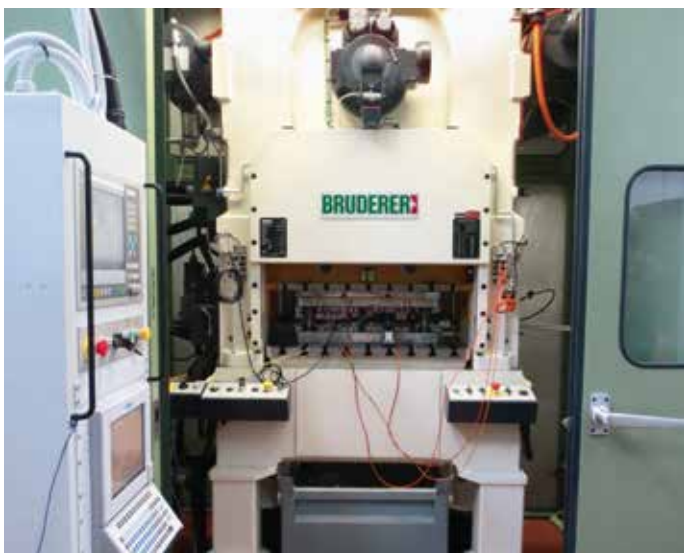
"The clear strategy always to trust BRUDERER's stamping technology is thus proven to be the right one."

Observations and experiences that customers have shared, have led WAASNER to conclude that the dynamic range of fully-automated stamping presses from other manufacturers is more critical when they come into play with tools that are manufactured in house. "This makes high-quality series production incredibly difficult," says Christian Waasner. A further attribute which tips the balance in favour of relying on BRUDERER fully-automated stamping presses, as right from the start, they have high levels of availability of the machines and a rapid After Sales Service. "This guarantees that we can keep our down times to a minimum and ensure high levels of productivity. In terms of replacement parts and service, BRUDERER are absolutely exemplary as far as suppliers go – and we have a long list of others to compare them with. Replacement parts and fitters are always available within 24 hours – if not quicker." The clear strategy always to trust BRUDERER's stamping technology is thus proven to be the right one. With the company's incredible expertise in tool-making and the quality of the machines made in Frasnacht in Switzerland, WAASNER has been able to virtually establish its own market in Europe in terms of its USP of package stamping.

Looking into the future with confidence.
With the growing trend towards e-mobility, the need for ever more efficient drives is also increasing, particularly in view of the energy efficiency standards which continue to rise. This means that ever thinner sheets are being used for the package stamping of high silicon laminations, and this requires even closer tolerances. "The Europeans once again have an advantage over the standard drives from Asia, since their consumption data is still too high," assures CEO Dr Michael Waasner. "Our task will be to increase the energy efficiency of future drives primarily through our knowledge edge. The bottom line is that this means combining even more complex stamping geometry with new materials." WAASNER can look to the future with confidence in this respect, since the company is a leading expert in the processing of high-quality and incredibly thin material, having carried out initial tests with sheet strengths of just 0.2 mm over ten years ago. It comes as no surprise therefore that they are currently in the running in the highly attractive growth market of e-mobility for a German car manufacturer. Management see this as the future for the company's further development, along with continued work with BRUDERER to maintain the success of this family-run business.

Rotor stack.

A look at the production process.



The BRUDERER fully-automated stamping press plays a central role in the high-precision manufacturing of stamped parts at Inarca.

Family-run business Inarca already thinking to the future.

Inarca is a market-leader in electrical connecting technology, based at Vigodarzere near to the beautiful city of Padua, at the heart of the Veneto region which is one of the main economic centres of Northern Italy. The public limited company which will soon be celebrating its 50th anniversary has some 120 employees and a turnover of 28 million – impressive figures in such a competitive sector.

We were given a guided tour of the long-established headquarters by Gianni Piovesan, the chairman of the board of Inarca taking us around all departments, from product development and production to quality control and warehouse logistics.

Inarca designs and manufactures in-house all the tools and appliances required for the production of electrical connectors for a whole host of different uses, but primarily in the household appliances industry – a sector where global competition has led to a real battle in terms of pricing.

The power of innovative.
To maintain its position as a market leader, the company relies on new solutions which it tailors to the needs of its customers. "This is clearly where Inarca's strengths lie," says Piovesan. "Our innovations are the result of an annual investment of around 10% of our turnover in research and development, and they are provided by highly-qualified employees and a fully-equipped design office. All of this combines to ensure that we can stay in pole position."

This innovative structure enables the company to be completely autonomous in developing and producing its products, maintaining full responsibility towards both customers and the market whilst having absolute freedom of decision-making in terms of the planning, construction and production of new solutions.

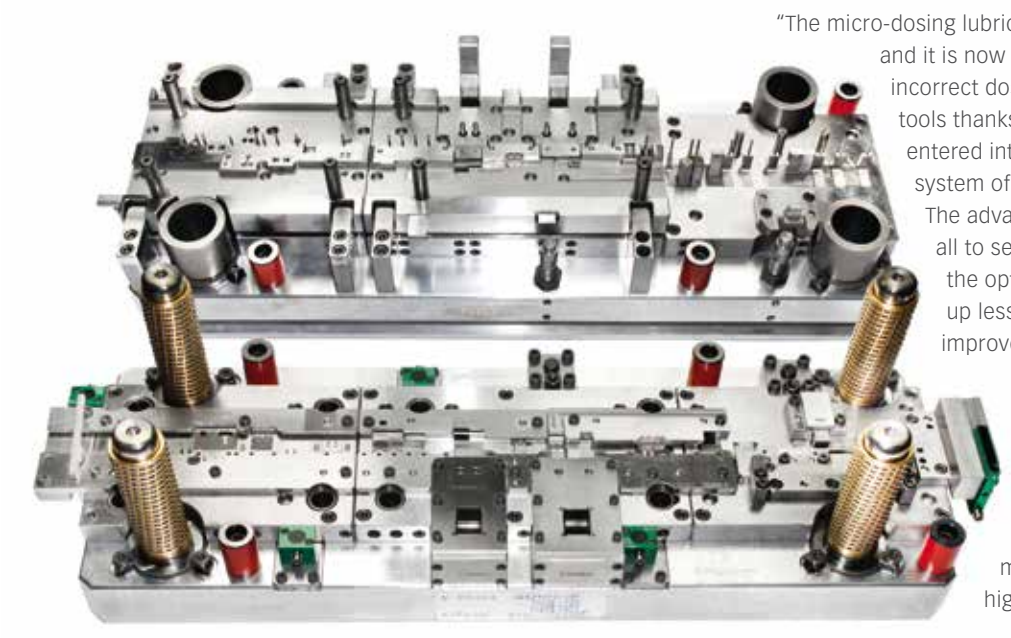
Trusted partners for decades.
The company has worked with BRUDERER for nearly 40 years now – in fact almost ever since Inarca was founded, and this adds further leverage to the strength of innovations available. An ambitious project to renovate the in-house stamping department – which is core to metal component construction – is currently under way and features new BRUDERER high-performance fully-automated stamping presses.

"Quality is absolutely critical for our survival in this market," Piovesan explains. "The tools for many of our products are as technically demanding as they are sensitive, since the off-tool parts can only vary by one to two hundredths of a millimetre. To obtain this level of precision, tools of the highest quality with micro-tolerances are required. BRUDERER fully-automated stamping presses certainly provide the precision and quality of parts that is required."

Each machine is specially set up for Inarca by BRUDERER, since the optimisation of the manufacturing tools is just as important as the innovations provided by the fully-automated stamping presses. "The market is demanding ever-more precision products, meaning that tool manufacturing and stamping technology have to constantly develop," Piovesan explains.

Four innovative steps all at the same time.
Along with the new BRUDERER equipment, Inarca also undertook four innovative new steps – changing from a mechanical to a servo feed; adopting a new system for strip and tool lubrication, a complete tool and process monitoring procedure and a reduction in energy consumption.

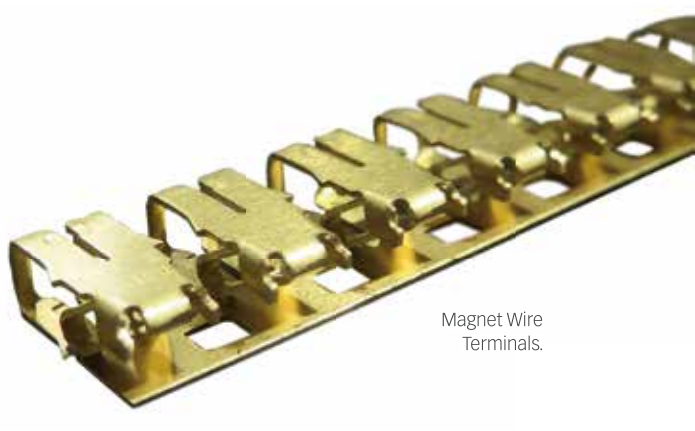
The implementation of the servo feed has improved matters primarily in technical terms. For Inarca, this means more precision and repeatability whilst at the same time reducing the error rate. Once the fully-automated stamping press has been installed and set up, it carries out the pre-set programme with precision and repeatability, "which has considerably reduced the tooling set up times", says Piovesan.



Inarca high-performance tools are well-known for their durability and precision.

"The micro-dosing lubrication system has optimised oil usage, and it is now virtually impossible for there to be an incorrect dosage of lubricant for the strips and tools thanks to the fact that lubrication data is entered into the tool parameter of the B-control system of the fully-automated stamping press. The advantage for the environment is clear for all to see. Product profiling is easier thanks to the optical measuring technology. It also takes up less space, which gives the operator greatly improved access to the machine."

Another real innovation is the introduction of new control sensors onto the tools which measure either the tolerance or the wear on the tool components. With tools having dynamic mechanics where tool degradation is high, deviation in dimensions can only be identified by the time the tool is no longer functioning correctly. With BRUDERER fully-automated stamping presses however, the electronic controlling system is guaranteed throughout the entire stamping process which keeps production within the error threshold and ensures the long-term optimum functioning of the tool.



Magnet Wire Terminals.

The new BRUDERER equipment has also produced a significant reduction in energy consumption. "The fully-automated stamping presses provide not only greater precision and speed but are also simpler in terms of set-up and controlling. Furthermore the energy requirements have actually gone down rather than up," Piovesan explains proudly. "The difference in efficiency between the new BSTA 280 and BSTA 200 and the old BSTA 41 and BSTA 20 is a significant one. We can achieve savings of up to 5.5 kW/h for each fully-automated stamping press, which adds up to almost 33,000 kW/h a year less electricity, with a reduction in CO^2 emissions of around 19,470 kg at the same time."

The Inarca factory has also been equipped with a 300-kW photovoltaic system as part of its certification for environmental protection and eco-friendly and sustainable product development. The clearest illustration of this is the ISO 14001 certification that the Padua-based company obtained in 2006.

Looking to the future with ultra-modern technology.
When Piovesan is asked to outline the future of this family-run business, he comes straight to the point. "For cutting-edge products, you need ultra-modern technologies and highly-qualified personnel," he went on to say "We are going to be just as competitive in 50 years time as we are now, and we have every intention of consolidating our position."

Connecting with the future: Diehl Metal Applications.

The Diehl Group is one of the largest internationally-focused industrial companies in Germany, whilst remaining a fully family-run affair ever since it was founded. It employs almost 14,000 people in five sub-groups of the company which comprise over 40 independent units. The Diehl Metal Applications section has around 70 fully-automated stamping presses at its locations in Besançon, Teltow and Zehdenick, where it produces seven billion stamped parts every year, most of them coming from BRUDERER machines.

Pride in his work – Ronny Intreß alongside the new BSTA 280-88 high-performance fully-automated stamping press with B2 control.

Diehl Metall is a major part of the Diehl Group, founded in 1902, which has gone on to become a leading player in the global market in the past few decades. Diehl Metall is one of the largest producers of semi-finished products, along with forged and fabricated components. Very fine precision stamped parts are used to make metal and plastic composite systems for electronic and electro-mechanical applications, with more than 3,000 people currently employed by the company located in Röthenbach, in Germany.

Concentrating on the entire value-creation chain.
Customers in these particular fields have come to particularly appreciate the strategic direction that Diehl Metal Applications (DMA) has chosen, which sees them focus on client-specific co-designing as well as the production and marketing of high-technology products across the entire value-creation chain. The majority of customers come from the automotive and electrical industry and get everything they need from DMA, inclusive of support with product development, input materials, stamping technology, Schempp+Decker press-fit zones and surface technology, right through to overmoulding and assembly technology.

"Our customers and business partners can benefit from Diehl Metal Applications as a system supplier and use our comprehensive technological expertise across the entire value-creation chain," explains Stefan Woldt, head of Plastics and Stamping Technology at Berlin/Teltow. "We call it the ‚one-stop shop', and we provide everything from input materials to metal and plastic composite systems."

Schempp+Decker press-fit zones a speciality.

The Schempp+Decker press-fit zones.

One of the technological highlights that Diehl Metal Applications offers its customers in the automotive supply industry is the innovative solderless connection technology of Schempp+Decker press-fit zones. "While most components in the automotive supply industry are still processed using conventional soldering, this press-in technology is definitely where the future is at," says Frank Uibel, Head of Sales for DMA, who sees this as a real growth opportunity for the unit.

Press-in technology sees stamped parts pressed with Schempp+Decker press-fit zones into the corresponding printed circuit boards as individual pins, connector or plastic overmoulded components. The zones then need to be adapted to the guidelines set out by the automotive industry.

For use in the automotive industry, we produce Schempp+Decker press-fit zones with material thicknesses of 0.6 mm and 0.8 mm. Development continues apace, and a 0.4 mm Schempp+Decker press-fit zone is already being adapted to meet customer requirements.

"Our strategic realignment was definitely the right choice."

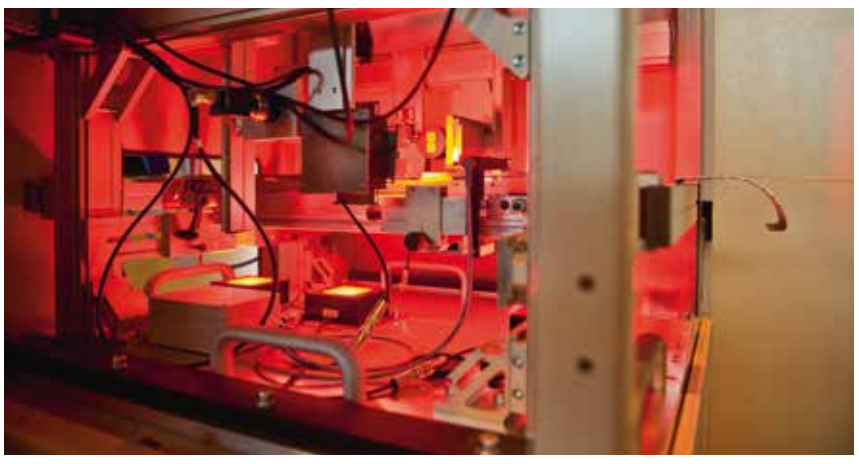
For surface coatings, finding alternatives to the usual tinned surfaces is becoming increasingly important, and this is another area where Diehl Metal Applications will have new possibilities to offer its customers in the near future.

To ensure constant levels of quality whilst still meeting the demanding requirements of the automotive industry, experienced expert employees are required, along with top-class tool-making capacities and of course, ultra-modern stamping technology. "BRUDERER were the only machines we ever considered," says Woldt. "The BSTA range has all the solutions we need to fulfill our quality and speed requirements. Moreover BRUDERER's replacement part, assembly and trouble-shooting services are as impressive as their products. Here again we have had nothing but positive experiences and are looking forward to expanding our cooperation in the years to come."

Unique positioning.
"Thanks to the Schempp+Decker press-fit zones combined with our surface technology, in-house tool-making, fully-automated BRUDERER stamping presses and a top-class team, we've been able to increase our business volumes considerably in the last few years," Woldt is quick to underline.

Ready to face the future.
To overcome the lack of highly-skilled labour, DMA employs flexible organisational units and ensures that there is a healthy working environment as well as in-house training for young employees. "Our strategic realignment was definitely the right choice," asserts Woldt as he looked to the future, which will see the group "moving away from standard providers and contract stamping to becoming a partner and specialist for the automotive and electrical industry". Order intakes are already confirming the success of this decision, and if you would like to experience the full DMA performance range for yourselves, then come to Halle 6, Stand 6216 at the Blechexpo in Stuttgart from 5 – 8 November.

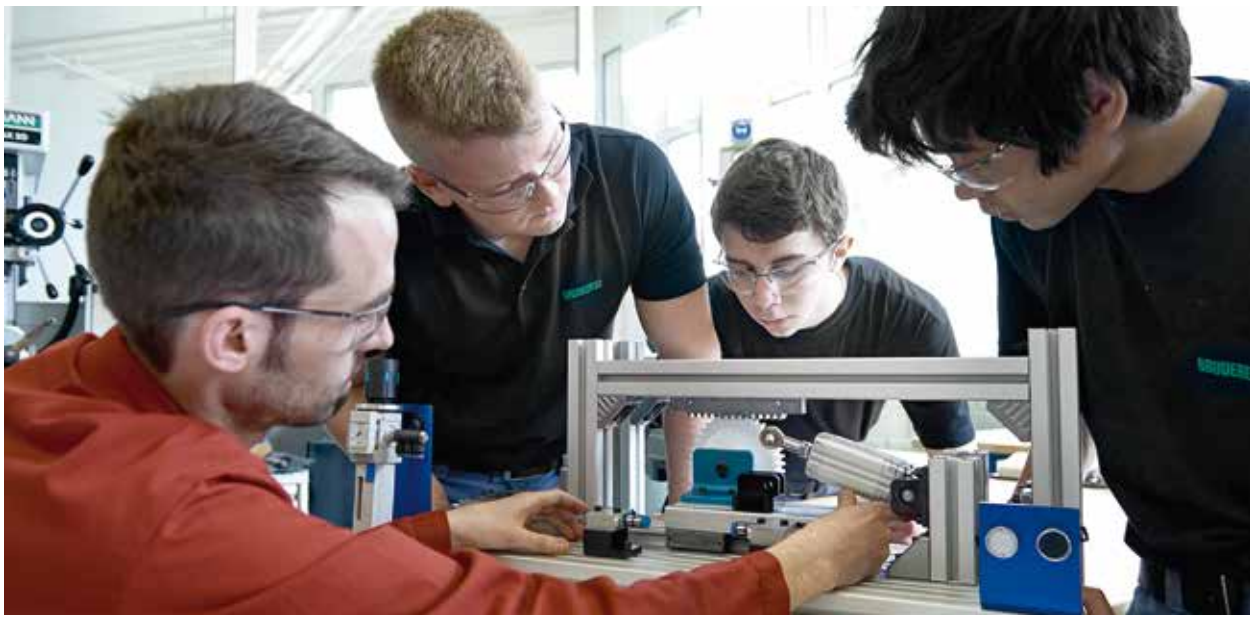
100% camera monitoring at the machine outlet.



Perfect products require perfect concentration during manufacturing.

The first rung on a successful career ladder – an apprenticeship at BRUDERER.

Mechanical engineering is Switzerland's third largest export branch, behind the chemical and pharmaceutical industries. And although it is responsible for 14.9% of the country's exports, highly-trained specialists are a rare commodity in this industry, which is why BRUDERER's training programme with the various professional perspectives it offers enjoys an excellent reputation.



Trainer Marcel Honegger at the in-house training centre, imparting knowledge to apprentices (from left: Tomas Dreno, Damon Heeb and Surin Thalmann).

Good training opportunities are rare, and young people know this only too well, which is why most of them start looking for an apprenticeship in the two years before they complete their schooling. Renato Petrillo is head of HR and Training at BRUDERER in Frasnacht, and having already been responsible for the training of young professionals at other companies, he is well placed to compare. "The qualifications that our trainees get are really top class, they have everything they need," he says. "This is doubtless why BRUDERER enjoys such a good reputation in the local area, but it is still nevertheless tough to make talented youngsters aware of us. We manage though in the end."

One of the ways of doing this is the OBA trade information fair that was held last year in St. Gallen. Third-year BRUDERER trainees presented common project work which went down very well with all those present. The trainees were responsible for planning, constructing and producing a fully-functioning automated stamping press with a press capacity of 4.7 kN, made up of around 500 parts and requiring a total of 947 working hours. All of the individual parts were produced in-house at BRUDERER. "We have a high vertical range of manufacture, meaning that people can be given training in virtually every step of the production process and in all types of manufacturing. In each different type of training, they get an insight into the planning and production processes which is something that not every company can do nowadays since the corresponding operations have been outsourced. In the longer term, this enables us to avoid some of the exodus of the specialists away from industrial production," Petrillo explains.

BRUDERER offers five different types of apprenticeship, three of them in production. **Polytechnicians** concentrate on programming and utilising ultra-modern machines for the production of workpieces, tools and devices, and this is also the case for **automation engineers** and **automation assembly engineers**, whose training is focused on building and programming electrical control systems, devices, machinery, equipment and fully-automated systems. **Logistics specialists** also work in the production department, with trainees learning all about specialist warehouse management as well as the execution and controlling of incoming and outgoing goods.

BRUDERER trainees at the OBA trade information fair presented a miniature version of a fully-automated stamping press which they had designed and built themselves.

In the technology sector, BRUDERER trains **design engineers** who use ultra-modern 3D CAD programmes to design individual parts and component groups for tools, machines, equipment and apparatuses as well as producing manuals and documentation for the usage and maintenance of the products.

Depending on the type of apprenticeship, training lasts from three to four years with successful candidates earning a Swiss federal vocational certificate at the end.

The various professions may all be very different, but the training is equally solid and demanding in all aspects. "We give our young professionals real job-related training," explains Marcel Honegger, who is in charge of vocational training in BRUDERER's production department. "After an initial intensive training phase, all trainees are then given the exact kind of production tasks they need. There is a good reason why our training workshop has ultra-modern computer-controlled machine tools instead of old, discarded equipment. At the end of the day, we want to give our young professionals training that is as close to the reality of everyday work as possible." "We set store by how trainees learn specialist skills but also how they acquire methodical abilities," Petrillo adds. "For example we teach them processes and strategies in workplace technology which will help them to carry out their own tasks in an easier and more efficient way. And we obviously promote social competencies, particularly in terms of teamwork. They practise how to find their own role within a group in such a way that they can make an important contribution to the overall goals of the team."

Learning is all very important, but is the training also fun? "We make sure that there's plenty of that as well," Honegger laughs. "For example in the first year of training we go off on a hike and then in the second, we organise a really fun cultural excursion. And obviously there's an exciting trip every year for those who complete their training."

BRUDERER carries out targeted HR marketing when it comes to their vocational training, as Marcel Honegger explains. "We are present every year at a whole host of information events on career opportunities, in conjunction with regional schools, associations and institutions. To give youngsters looking for an apprenticeship some first impressions, we regularly invite school classes to come and visit us, and any pupils in the eighth and ninth grade who show an interest can do mini-apprenticeships throughout the year. These usually last three to five days and give them the chance to get to know the various professions a little better."

As well as initial training, BRUDERER also encourages further training and specialisation, enabling youngsters to carry out specific study projects, or for students or trainees to do internships over a number of months. This is an aspect which also benefits local companies, some of whom send their prospective design engineers to BRUDERER every year for compulsory workshop training.

As far as BRUDERER is concerned, training young employees represents an important investment in the future. The company offers further employment to all those who successful complete their training, even during times of economic hardship. After all, as Petrillo so eloquently summarises: "If Swiss industry does not train the specialists of tomorrow, then who will?"

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For more information about BRUDERER and our products, services and subsidiaries, visit www.bruderer.com

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