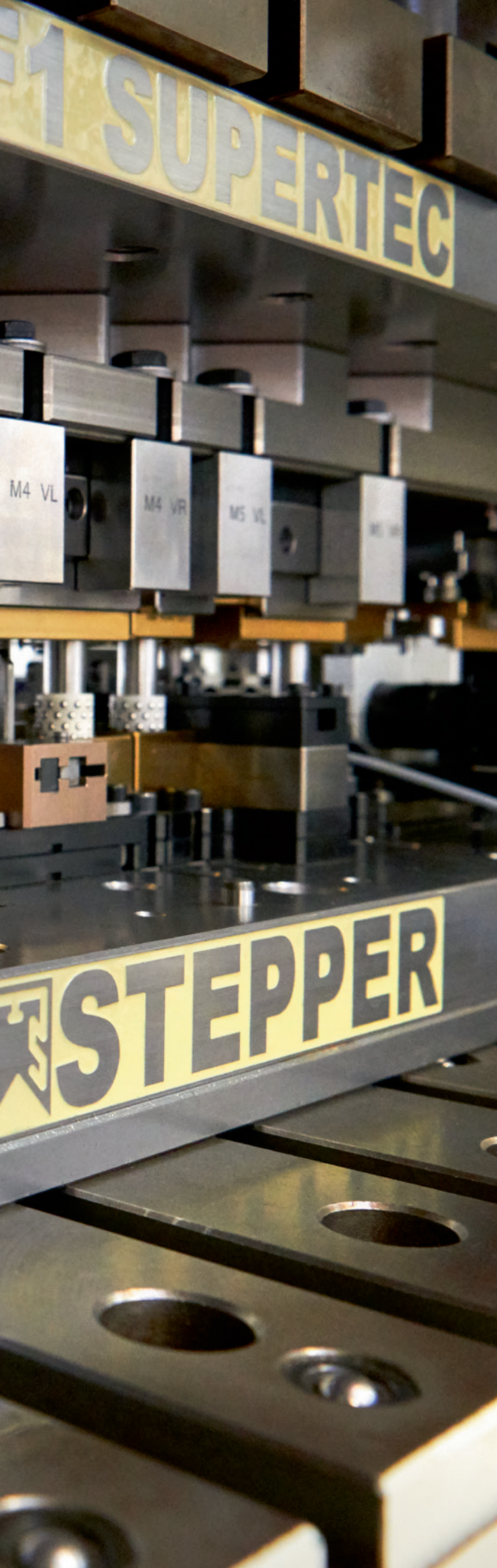


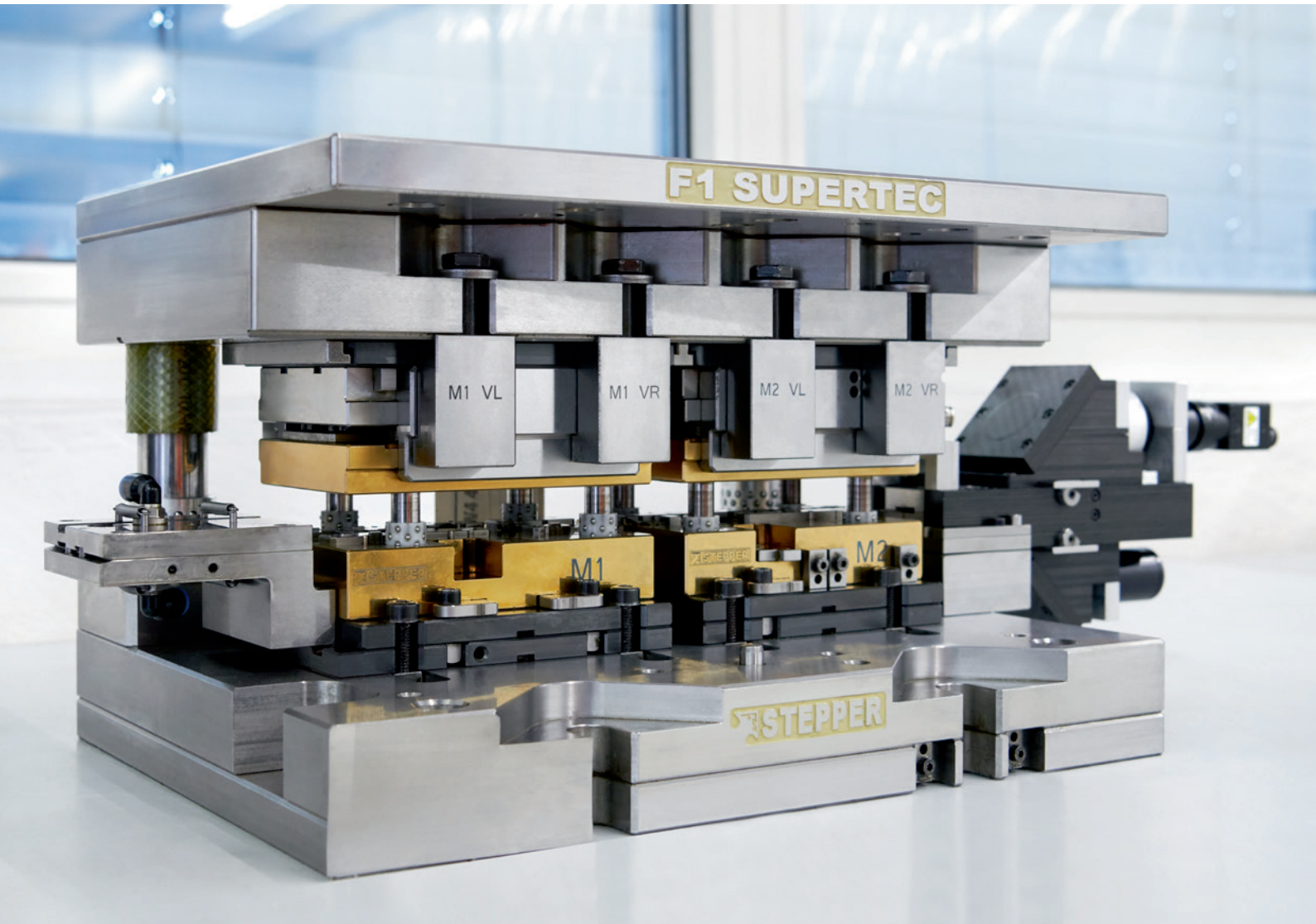


NEXT STEPS BY STEPPER.

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. →

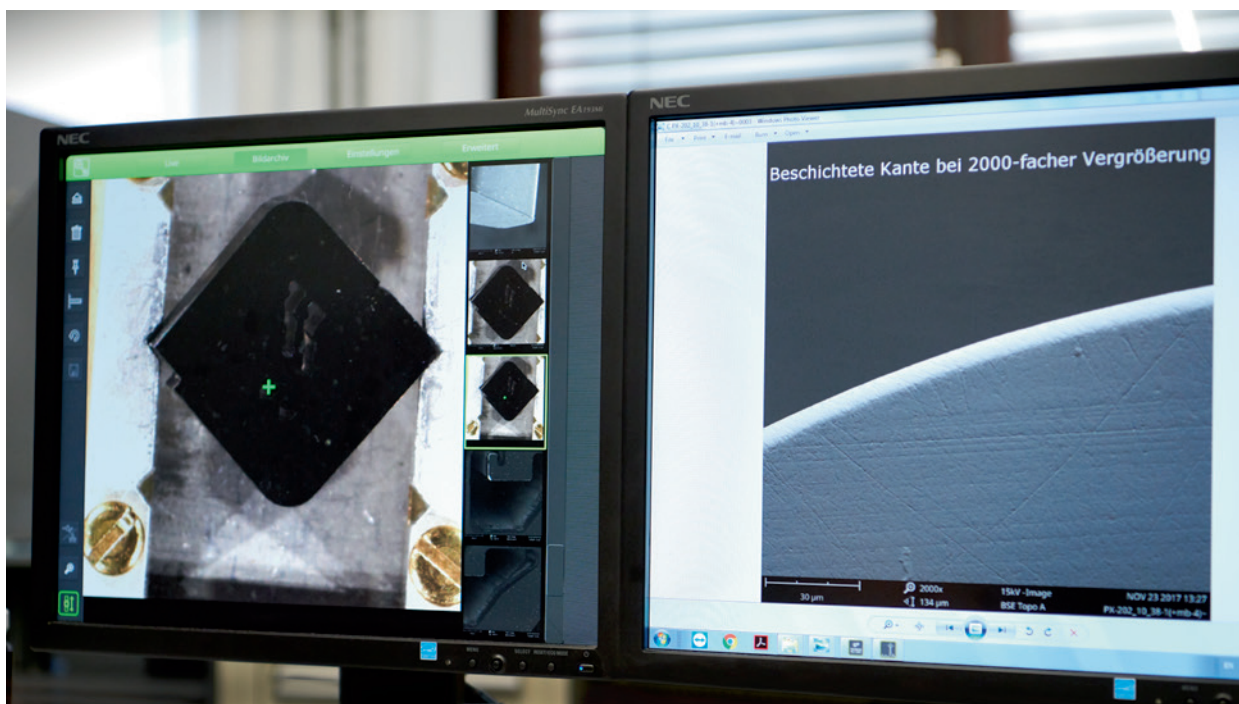
“We have recognised early on that we can be considerably more successful when seeking solutions with specialists in their area, than on our own and our partnership with BRUDERER started in the seventies and has been a real benefit for both of us.”

*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. 

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