



For difficult forming operations, Fütterer Werkzeugbau relies on Stampack. The simulation software convinces the specialist for transfer, deep-drawing and progressive dies especially in terms of flexibility, efficiency and optimisation potential.

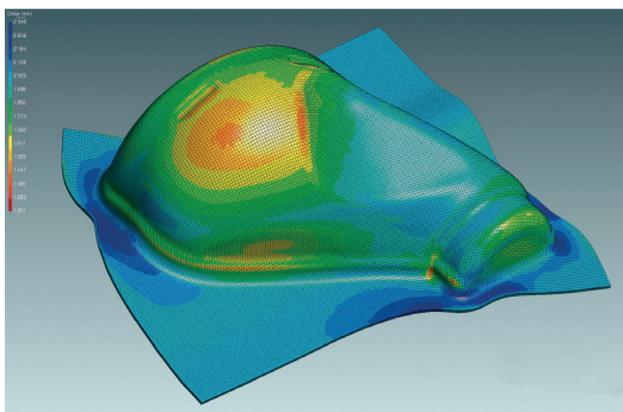
1/ The interview partners: Christian Fütterer (l.) and Frank Hornung from Men at Work

## Full control by volume simulation for sheet metal forming

Founded in 1986, Fütterer Werkzeugbau with its 35 employees today is an expert in the design and manufacturing of high-quality sheet metal forming tools as well as prototypes and prototype tools. The family-owned company, located in Elchesheim-Illingen near Karlsruhe, Germany, manufactures about 30 tools per year. Depending on size and complexity, the lead time of a tool can be up to 24 weeks. The tools weighing up to 10 tons are tested on the company's own test press.

While turning, milling, grinding, wire and sink erosion are carried out in-house, hardening is done externally. The Baden-based company delivers the tools it produces - processing sheet metal from 0.4 to 5 mm - to customers in the automotive, construction, household appliance and electrical industries. In addition, Fütterer is also active as a contract service provider; the range of services extends from CNC-turned parts to single-part production and forming simulation.

The toolmaker clearly sees his core competence in method planning and tool design: "Customers often contact us with the first idea of a component. We then offer the entire portfolio - product development, feasibility analysis, forming simulation, optimisation," Managing director Christian Fütterer explains. "Very important for the customers are the tolerances and reliable data on material consumption and stroke rates. We consider how the part can be produced, how many steps are

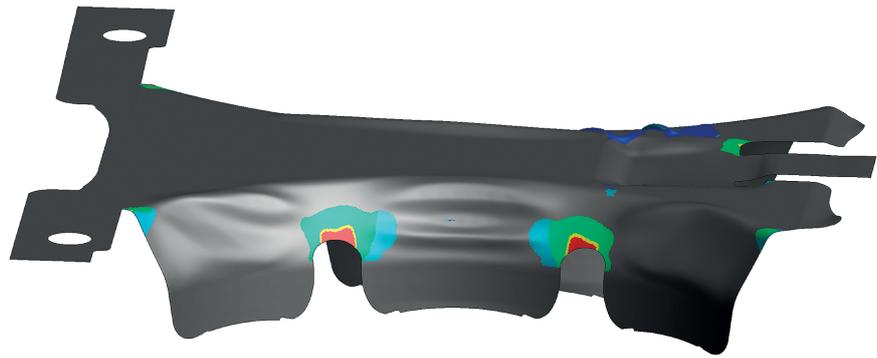


2a + b/ In the simulation of an exhaust system component, Stampack calculates multi-stage forming processes completely in volume (A). The component of a car exhaust system will later be installed in a Porsche (B)

necessary, which operations are carried out in which sequence, how large the required blanks must be or what strip width is required". A great deal of know-how and design engineering hours are already involved in the phase before the offer is made. This is the reason why Fütterer often makes an invoice for complex tools as early as the quotation stage, which is charged when the order is placed.

VISI, a product family for tool and mould making currently comprising 22 modules from Hexagon (formerly Vero Software), was recently installed at Fütterer. In a first step the CAM and Progress modules of the 3D industry solution will be used at Fütterer. For around four years now, the toolmaker has been relying on Stampack, an advanced and productive simulation software for all areas of metal forming.

"Stampack's highlights include stretch forming, forming of thick sheets, fast springback and compensation determination, stretch forming of sheets and profiles, and other special forming processes. Due to its own 3D volume solver, Stampack is particularly suitable for the calculation and simulation of progressive die processes," Frank Hornung explains, He is Managing Director of Men at Work GmbH, the most successful Stampack dealer worldwide. "The practice-oriented software is intended for product developers and method planners alike. Previous knowledge and practical experience in FEM is not required, after three days of training experienced designers can work with Stampack without any problems". Since both companies have been working together more than twenty years in tool design and method planning Fütterer purchased forming simulation as a service from Men at Work in the beginning. Men at Work from



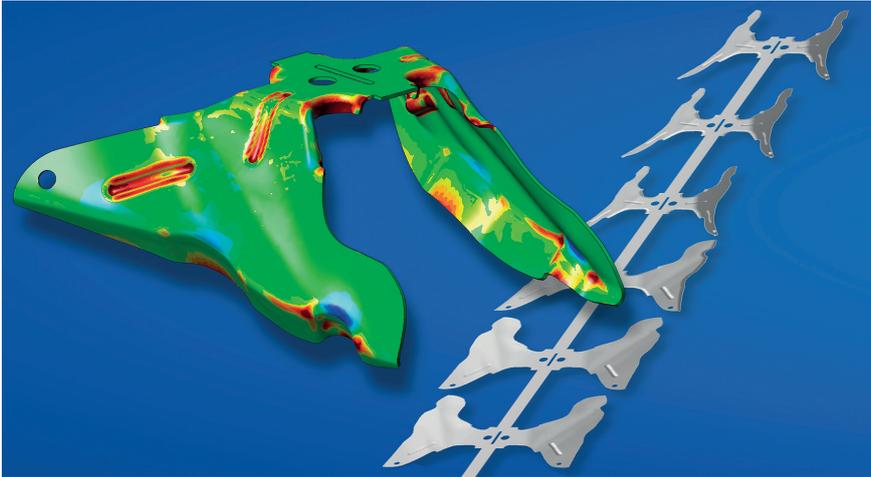
Stampack®



3a + b/ Original part and simulation in Stampack - the simulation software allows Fütterer to analyse and predict material flow, formability, wrinkles and surface defects

Bietigheim, which is which is located near by, has been selling the simulation software since 2009. Fütterer was so impressed by the first Stampack application that the desire to bring the system in-house quickly arose. "The main reason for purchasing the software was that I no longer want to outsource the know-how contained in our designs. After all, I no longer wanted to pay others money for supplying them with my knowledge," Christian Fütterer looks back. Finding employees who are familiar with the design and simulation of tools is becoming increasingly difficult. Modern simulation tools increase the attractiveness of the workplace in

tool design and development. When commissioning Stampack, the Baden-based company took a special approach, similar to on-the-job training. A software developer from Men at Work, who had never held a piece of sheet metal in his hands before, came to Fütterer for a fortnight. Through two concrete projects he learned how a tool works and the toolmaker learned how the software works. So it's a classic win-win situation for both sides. Fütterer supplies 95% of the tools ready for series production, only the training and finishing are carried out at the customer's premises on the series press. This is why Stampack is first used during an



4/ One of the essential new features of Stampack is the automated cross-linking of tools from external data, without the user having to introduce parameters

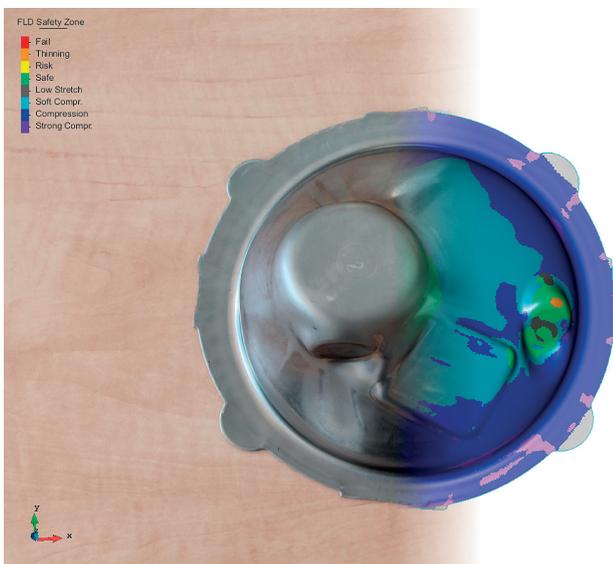
order for method planning, which is the basis for calculation. The elaboration of the method planning can take up to two weeks, usually in teamwork of the three designers in house. Various questions have to be answered, such as the number of steps in the tool, whether the tool can be formed in one operation, how big the tool will be, whether the method works and which press is required. Stampack is used for testing with a pre-simulation, initially only in the shell simulation. "It's a kind of quick and dirty variant that doesn't require so much computing time and gives me a rough indication of whether the motion sequence will work," Christian Fütterer describes. "For critical areas I simulate in volume, then I

am absolutely sure". Since Stampack impressed the tool-maker so much after the first orders, he is now offering simulation as a service to his customers. Stampack has proven to be absolutely reliable at Fütterer Werkzeugbau.. One software licence is used by the boss himself in Elchesheim-Illingen, another one for the design engineers increases the capacities. In practical use, the simulation software offers the Baden-based company numerous advantages: For example, its flexibility, as it makes calculations for sheet thicknesses from 0.4 to 6 mm. "We are also impressed by the element technology, because Stampack supplies both shell and 3D volume simulations. And allows us to

analyse and predict material flow, formability, wrinkles and surface defects," Christian Fütterer draws a positive conclusion. "The optimisation potential thanks to the determination of springback with compensation calculation for tool adjustment should also be emphasised. Another significant advantage for us is the efficiency of Stampack, because the use of the software saves us at least two change loops per tool".

### Stampack GmbH

Stampack GmbH was founded in 2018 and acquired the Stampack product line for metal forming simulation software from Quantech ATZ in Barcelona, Spain. The company took over the development team and the entire operational business from the previous owner. Since its market launch in 2010, Stampack has become the leading simulation in the field of progressive dies. Thanks to enormous improvements in the computing speed of its own shell solver, Stampack is now also suitable for large-area automotive parts. Since 2018, the computing time for a benchmark simulation has been reduced from over 6 hours to 24 minutes. The practice-oriented software is equally interesting for product developers and method planners. Previous knowledge and practical experience in FEM is not required.



5/ Previous knowledge as well as practical experience in FEM is not required. After three days of training, experienced designers can work with Stampack without any problems (Pictures: Stampack)