

## Forming simulation for every tool designer

„Stampack Xpress is a completely new development and gives medium-sized and small companies the inexpensive opportunity to simulate forming processes and thus significantly reduce the costs of tool testing,“ explains Markus Wagner, Managing Director of Stampack GmbH. „When designing the software, we placed particular value on user-friendly user guidance and the possibility of integration into existing design environments. In the meantime, automotive OEMs have also recognized this and therefore accept Stampack results from their suppliers“.



3D volume simulation allows the exact simulation of the forming process: reality (right) and simulation (center) are practically indistinguishable.

For example, finished network geometries can be transferred from VISI, the leading CAD system for the design of progressive die and press tools. When the data is transferred, a geometric analysis of the contour is carried out in VISI. With the results of this analysis the net creation is automated as far as possible. The user can check the feasibility of the forming at his workstation directly after creating the drawing method in the CAD system.

With many progressive dies, a reliable statement about the feasibility is only possible by considering the complete part structure. While the usual shell simulation provides good results for thin sheets such as car outer skin parts, forming processes that include stretching or flow processes must be considered with a volume simulation over the entire material thickness. In many cases, the shell is also good enough for preliminary calculations, which must



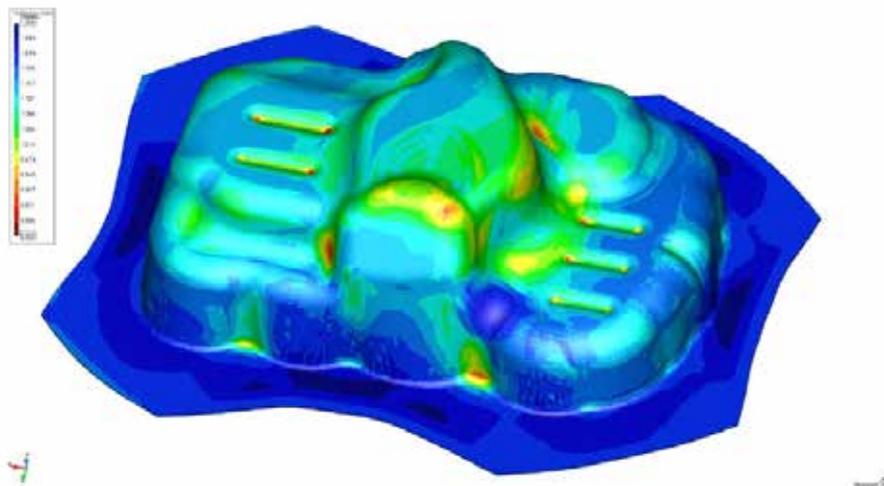
Stampack Xpress: Volume simulation and user-friendly interface quickly deliver accurate results for feasibility and surface finish.

then be confirmed at a later date by a very precise calculation. Stampack offers a solution for both needs with shell and volume technology.

In particular, the calculation time of the volume simulation has been considerably reduced by a factor of 3 compared to the previous version of Stampack Xpress. This was made possible by an automatic mesh refinement during the simulation, which ensures that the calculation is much more accurate at problem areas than at the less interesting areas of the sheet metal.

As a further innovation, Stampack Xpress will for the first time include material databases from leading steel manufacturers. Voestalpine Stahl and Bilstein, for example, are contributing a total of 84 experimentally validated data sets that relieve the simulator of responsibility for the material.

The licensing costs are designed in such a way that in future it will be possible for all design engineers to verify the method on the CAD system by calculation, i.e. without expensive workshop tests. Forming simulation thus becomes a standard module for every tool shop, regardless of the size of the company. „We offer users of market-accompanying products who can currently only access one shell simulation a solid only package that makes the advantages of volume simulation available to all users,“ emphasizes Markus Wagner. „After all, young and often well-trained designers in particular should gain their necessary experience with the simulation model and not through expensive rework on the finished tool“.



*Prediction of thinning by simulation with Stampack*

*Stampack GmbH has its headquarters in Bietigheim, Baden, and a software development department in Barcelona. The company focuses on the development and widespread use of simulation technology for sheet metal processes to synthesize and optimize designs, processes and decisions to improve business performance. Stampack's customers include more than 150 companies from the sheet metal forming industry.*