

AutoForm- FormingSolver

Software for Simulation of Stamping Processes



- ▶ Simulation of line and progressive die stamping as well as hemming processes
- ▶ Rapid and accurate simulation of deep drawing, restriking, trimming and flanging operations
- ▶ Accurate springback simulation
- ▶ Deep insight into all operations of the stamping process
- ▶ Rapid verification of multiple new concepts for quality and cost improvements



 **AUTOFORM**
Forming Reality

AutoForm-FormingSolver

Rapid and Accurate Simulation of the Entire Stamping Process

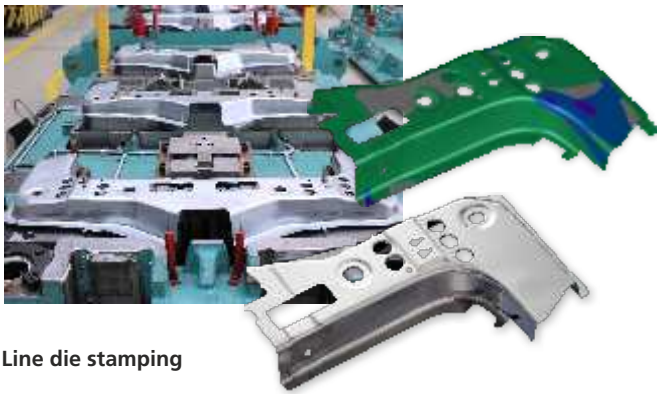
The simulation of stamping processes by AutoForm-FormingSolver combined with the results evaluation by AutoForm-Explorer provide the user with all the necessary information to design the process. AutoForm-FormingSolver simulates line and progressive die stamping as well as hemming processes.

Line die stamping

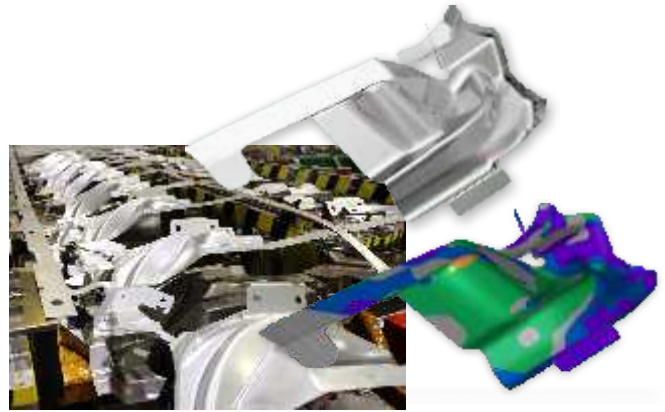
Drawing: All relevant parameters for the drawing operation are set up by AutoForm-Explorer. These parameters include single or double action presses, number of tools, drawbeads and spacers, constant or time-variable binder pressure, lancing cuts, regular or tailor-welded blanks, etc. AutoForm-FormingSolver simulates the drawing operation and provides all the necessary results for its further evaluation.

Trimming: Engineers can easily define all trimming operations, including contour trims and hole cutting. To realistically reflect the actual process, different cam directions can be specified for each trim or cut line. The simulation of the trimming operation is carried out by AutoForm-FormingSolver.

Springback: Updated material model, fine-tuning of the existing shell element, advanced contact handling and optimized mesh refinement are some of the latest technological achievements combined in AutoForm-FormingSolver to ensure the successful calculation of springback problems. Springback can be calculated after each forming or cutting operation and the clamping order can also be taken into consideration.



Line die stamping



Progressive die stamping

Hemming

AutoForm-FormingSolver simulates both roll and table top hemming. The simulation of hemming processes can be carried out in the early stages of product development and production planning when the die layout of the drawing and forming operations is still not available. The CAD geometry of the flanged part provides the main input for simulation by AutoForm-FormingSolver. In addition, the simulation can be carried out in process engineering when the detailed definition of the drawing and forming operations is available.

Progressive die stamping

The simulation of progressive die stamping significantly differs from that of line die stamping. Due to the complexity of progressive dies, it is important to address all the factors that contribute to achieving the desired level of part quality, including blank position, pilots, blank boundary and stretch-web deformation. Other factors to be considered are timing and interaction of carriers, pads, and upper and lower tools. AutoForm-FormingSolver simulates progressive die stamping and the results obtained are then evaluated by AutoForm-Explorer.

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Publication FS-3-E

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