AutoForm-Compensator

**Software for Tool Geometry Compensation
Based on Springback Results**

- ► Direct use of springback results for tool surface and trim line compensation
- ► Full integration within process definition
- ► Quick and flexible evaluation of various compensation strategies
- ► Reduction of costly correction loops (die re-cuts and tool adjustments) during tool tryout
- ► Complete tracking and documentation of strategy used in each iteration

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AutoForm-Compensator

Automatic Adjustment of Tool Geometry

AutoForm-Compensator allows users to automatically modify tool surfaces based on springback results. In this way, the part can be produced within predefined dimensional tolerances. Process engineers can either accept the automatically detected compensation regions of the tool or edit selected regions according to their needs. Compensated tools are then used in the final validation process.

AutoForm-Compensator enables process engineers to use springback results to compensate tool geometries. The high flexibility of the software allows them to easily and quickly identify the most effective strategy. As springback measurements of the simulated process can be carried out at any stage, the results can be used to compensate tools in any operation.

The software automatically detects the region of the tool which has to be compensated based on the springback results. The user can edit this region and/or define additional ones according to its needs. Regions with different characteristics can be defined as fixed (unchanged), transition (between direct and fixed ones), fixed draft (rigidly translated) and direct (directly compensated). By defining these different regions, engineers are able to control compensation.
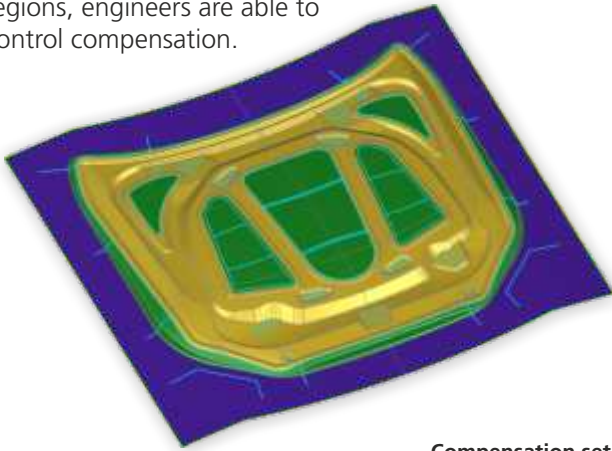
**Compensation setup:
direct (yellow), transition (green), fixed draft (purple)**

Compensation strategy

With the numerous functionalities implemented in this software, engineers have full control over the final shape of the tool. Thanks to the complete integration with AutoForm-Explorer, all compensated surfaces can be visualized and validated by simulation. With AutoForm-Compensator, the editing work is greatly facilitated, allowing engineers to focus their efforts on defining the most effective strategy.

In order to reduce the number of real re-cuts, tool compensation is typically carried out during the full stamping process validation phase. However, the compensation of real tools on real stamped panels/parts is not uncommon. AutoForm-Compensator allows users to import the mesh of the scanned panel/part and calculate the vector field which is then used to compensate the real tool geometry. In this way, the final part geometry is carried out within the required tolerances and with a minimum of correction loops. This procedure results in improved planning reliability in die development, tool shop and tryout as well as minimized risk of later, costly changes to tooling or processes.

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