통계학 기법을 이용한 AutoForm-Sigma 의 성형해석을 통한 차체의 성형성 및 양산성 평가

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Evaluation of formability and robustness by statistical stamping simulation of AutoForm-Sigma

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Abstract

A general trend and one of the important strategies in the automotive industry is reducing the lead time of a new car development. In order to obtain this goal the efficient use of simulation software is needed to effectively design a automotive part. The stages of the design chain are integrated in one simulation tool. The outcome of this feasibility analysis is a virtual prototype saying that it is possible to produce the part. In fact one process point has been defined whereas when going into production a process window must be know to guarantee a stable production process. In order to achieve this latter we are suggesting a process performance analysis. Based on multiple simulations the influence and sensitivity various process parameters on the forming process can be identified. Besides combining the analysis with statistical process control evaluation the process capability (Cpk-values) can be defined.

This design chain analysis will be applied on a automotive part. The process performance analysis is the identification of the process window and process capability in advance, so before any tool has been milled.

Key Words : Process design, Robust manufacturing

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