FE Simulation of Sheet Metal Forming – State of the Art in Automotive Industry

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Abstract. Nowadays feasibility studies using finite element analysis are performed in very early design phases of sheet metal parts forming. Further, simulation technology is used to optimize the first forming stage. Because of the ever intensifying international competition and the increased use of high-strength steels and aluminum alloys, the absorption of springback deviations is a great challenge, especially in the automotive industry. The application of numerical computation to predict springback deviations and to create compensated die designs in early design phases of sheet metal parts forming becomes essential. At DaimlerChrysler the numerically based compensation of springback deviations during the die development process of complex car parts is achieved. However, developments to optimize and compensate dies automatically or to predict form deviations on assemblies are still necessary.