



## Experimental and Numerical Studies in Incremental Forming

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Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Process for Prototyping of Sheet Metal Parts | Incremental Sheet Forming (ISF) process has been identified as a potential and economically viable process for sheet metal prototypes and low volume production. The process is highly flexible, requires simple tooling and dieless in nature. Realizing the potential advantages of ISF process, the present thesis focused to investigate the deformation behavior of Extra Deep Drawing (EDD) steel in ISF process. This material is widely used in automotive applications. The formability of EDD steel in terms of maximum formable wall angle has been evaluated using Varying Wall Angle Conical Frustums (VWACF) and Varying Wall Angle Pyramidal Frustums (VEAPF). The state of stresses and strains in incremental forming of VWACF and VWAPF parts have been studied through finite element simulations. Different strategies like mass scaling, time scaling and adaptive meshing have been used to minimize the computational time. Mathematical models have been developed to understand the effect of process parameters on formability and surface roughness of formed parts. These models have been further used for optimization of the process. | Format: Paperback | Language/Sprache: english | 188 pp.



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