Research on the Influential Parameters of the Deformability of PVC Sheet When Forming by Single Points Incremental Forming (SPIF) Technology

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Abstract

Recently, the Incremental Sheet Forming (ISF) technology is one of the manufacturing methods has applied popular in metal sheet forming. This technology includes two methods that are the Single Point Incremental Forming (SPIF) in which the forming tool applies on one side of the sheet and the another is the Two Points Incremental Forming (TPIF) in which two sides of the workpiece sheet are all applied by tools, simple molds or under the resistance of hydraulic pressure. There were many studies in SPIF technology focusing on the influential parameters effecting to the behaviors of the deformed sheet and have mostly concentrated on the deformability of metal sheet formed by SPIF. However, it might be difficulty to find out the researching studied application of this technology in forming of PVC sheet. Therefore, the influence of the forming parameters on the deformability and the springback value of PVC sheet by Design of Experiment (DOE) and Empirical procedures has been studied. The results might be a broad ability of SPIF technology that contributes to the manufacturing technology for forming non-metal sheet.

Keywords

Deformability, Incremental Sheet Forming (ISF), Single Point Incremental Forming (SPIF), Two Points Incremental Forming (TPIF), Springback, Design of Experiment, Empirical procedure.