

**Analysis of an Axisymmetric Deep Drawn Part Forming
Using Reduced Forming Steps**

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ABSTRACT

Numerical simulations have been widely used to assist part and process design. In this paper, deep drawing processes of an axisymmetric part with a complex geometry are analyzed with the aim of reducing possible forming steps. The existing practice requires 10-step drawing. Our approach combines optimization scheme, design rules and numerical tests using finite element analysis incorporated with a damage model. As a result, the 10-step drawing is reduced to 6-step drawing. Additionally, the new process design yields a lower maximum void volume fraction in the sheet, meaning a more formable process, and a slightly higher press load.