

# **ANALYSIS OF THE EFFECT OF PROCESS ANNEALING FOR DEEP DRAWING OPERATION**

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By

**Yalini Niththiyananthan**

**Science and Technology Degree Program**

**Uva Wellassa University, Sri Lanka**

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## ABSTRACT

The plastic forming process of sheet plate takes an important place in forming metals. The traditional techniques of tool design for sheet forming operations used in industry are experimental and expensive methods. Prediction of the forming results, determination of the punching force, blank holder forces and the thickness distribution of the sheet metal will decrease the production cost and time of the material to be formed. In this project, multi-stage deep drawing simulation of a cup has been presented with finite element method. The entire production steps with additional operations such as intermediate annealing and spring back has been simulated by DEFORM® software under axisymmetric conditions. The simulation results such as sheet thickness distribution, Punch force and residual stresses have been extracted in each stage and sheet thickness distribution was compared with experimental results. It was found through comparison of results, the FE model have proven to be in close agreement with those of experiment.

Keywords: Finite Elements Analysis, Deep Drawing, Simulation