

NUMERICAL STUDY IN DEEP DRAWING WITH SEGMENTED BLANK-HOLDER

Viorel Paunoiu & Dumitru Nicoara

“Dunarea de Jos” University of Galati - Romania, Manufacturing Science and Engineering Department

Corresponding author: Viorel Paunoiu, viorel.paunoiu@ugal.ro

Abstract: In deep drawing the blank holder provides the restraint force necessary to avoid wrinkling, tearing or excessive thickening of the blank. For complex parts such rectangular ones, different concepts for applied the restraint force have developed. One of these is the segmented blank holder concept with an adjusted blank holding force on each segment. In the paper the concept is used in obtaining a virtual rectangular part. The blank holder is composed from eight segments. The paper presents a numerical study based on FEM about the influence of the blank holding force profile applied on each segmented blank holders toward the part quality in terms of stresses, strains and springback variation. The results are compared with those obtained when a conventional blankholder is used. Finally important conclusions are made considering the industrial applications of this concept.

Key words: Sheet Metal Forming, Finite Element Analysis, Deep Drawing, Segmented Blank-holder