

FINITE ELEMENT ANALYSIS OF THE GEOMETRY OF THE TOOLS USED FOR THE CUP DRAWING PROCESS

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Abstract: The plastic strain procedure which is largely used in industry is the deep drawing process of sheet steel. Achieving a flawless cupped piece depends mainly on three factors: the characteristics of the sheet steel, the shape of the tools (the radius of the die and of the punch) and the cupping conditions. The simulation of the cupping process by taking into account the three factors which influence it allows one to know even from the designing phase whether a piece with a given configuration can be obtained through the cupping process or not. In this study we present the influence of the geometry of the die on some parameters of the cup drawing process of the anisotropic sheet steel. The results are obtained through the MEF simulation of the cup drawing process with the help of the ABAQUS programme.

Key words: cup drawing, anisotropic sheet steel, geometry of the tools, simulation MEF, Abaqus