



THE 7TH INTERNATIONAL CONFERENCE RESEARCH AND DEVELOPMENT OF MECHANICAL ELEMENTS
AND SYSTEMS

FE MODEL OF STEEL SPECIMEN UNDER BIAXIAL LOADING

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Abstract: *This study is motivated by the fact that in real technological processes of sheet metal forming different blank areas are deformed under different stress state schemes. The theoretical statements, based on the assumptions of isotropy and continuity of the deformed materials, provide on equality of the flow stresses. In fact, under different types of stress state schemes with one and the same deformations only, the real flow stresses are not identical.*

In the present research, the effect of stress state type on the hardening curve is evaluated using a Finite element model of sheet steel specimen under biaxial loading.

Results reflecting the influence of biaxial uniform and nonuniform stress state on the hardening curve, and respectively on the material behaviour, are obtained.

The hardening curves obtained under different ratios of tension forces are presented. The resulting curves for biaxial tension are compared with those for the uni-axial, and corresponding conclusions are drawn. It is found that material ability to plastic deforming increases under biaxial tension.

Key words: *biaxial tension, FE modelling*