

Investigation of Axisymmetric Bimetallic Tube Extrusion with Conic Die

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Abstract : In this article process of direct extrusion of axisymmetric bimetallic tube with conic die profile and constant Mandrel by upper bound method has been analyzed and finite element method is simulated. Deformation area is divided into six smaller deformation areas and are calculated by presenting two generalized velocity field and applicable input and output sections separately (velocity profile with logarithmic curve for input section and spherical velocity profile for materials output) for each die profile in spherical coordinate system strain rate values in every deformation area. After internal power, shearing power and material friction power is obtained, extrusion force is calculated. The results of upper bound analysis method with given results from other researcher's experiments and simulation by finite parts method (Abaqus software) are compared for conic die.

Keywords : extrusion, upper bound, axisy metric, deformation velocity field

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