

Estimating the Effect of Fluid in Pressing Process

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Abstract : To analyze the effect of various parameters of fluid on the material properties such as surface and depth defects and/or cracks, it is possible to determine the affection of pressure field on these specifications. Stress tensor analysis is also able to determine the points in which the probability of defection creation is more. Besides, from pressure field, it is possible to analyze the affection of various fluid specifications such as viscosity and density on defect created in the material. In this research, the concerned boundary conditions are analyzed first. Then the solution network and stencil used are mentioned. With the determination of relevant equation on the fluid flow between notch and matrix and their discretion according to the governed boundary conditions, these equations can be solved. Finally, with the variation creations on fluid parameters such as density and viscosity, the affection of these variations can be determined on pressure field. In this direction the flowchart and solution algorithm with their results as vortex and current function contours for two conditions with most applications in pressing process are introduced and discussed.

Keywords : pressing, notch, matrix, flow function, vortex

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