Deformation Zone Distribution of Continuous Extrusion Process

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Experiments and numerical simulations were conducted to analyze the deformation zone of aluminum cable in the conform extrusion process, and complex metal flow is observed by finite element. In this report, detailed studies were especially focused on the width of the extruding dies mouth and leakage gap which influenced on the metal deformation, then the stress and strain distribution and contact force distribution of arbitrary step were obtained with respect to different technical parameters among random steps. Furthermore, the relationship between the parameters of Δh and W/H was given, indicating that the intense internal Shear Band-IISB and leak gap affect the metal forming behavior, and enlarge obviously plastic deformation zone in a certain range. Consequently, it's proper to be helpful for metal homogeneous deformation to reduce the entrance width of the extruding mold.

Keywords: Continuous extrusion, Deformation Zone Distribution, Mold Parameters

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