عنوان مقاله:

A Finite Element optimization of the die clearance in deep drawing of a cylindrical workpeice with low thickness to diameter ratio

محل انتشار:

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خلاصه مقاله:

In this paper, using finite element method, the effect of clearance on deep drawing of a cylindrical workpiece with low thickness to diameter ratio is investigated. The ۰.۲ mm wall thickness of the workpiece, made of low carbon steel, creates numerous problems in the process. In this case study the deep drawing is one stage of the manufacturing process for a cartridge of a hunting gun. An Explicit ABAQUS model embedding the elasto-plastic behavior of the material, is created to simulate the process. Mesh independence analysis and model verification is carried out. Using FE simulation of the process the effect of different clearances on wall thinning and overall drawing load is investigated. It is shown that the extra thin wall thickness of the part makes the drawing process severely sensitive to wall thinning and fracture. In the end the optimized clearance which result in safely producing the workpiece without the risk of .fracture, is suggested

کلمات کلیدی:

Deep drawing, clearance, Finite element Analysis

لینک ثابت مقاله در پایگاه سیویلیکا: