多点成形冲头动态接触压力仿真分析　Simulation on Dynamic Contact Forces of Punches in　 Multi-point Forming Process

陈雪 李明哲 付文智 龚学鹏

吉林大学

关键词：　　多点成形 冲头 接触压力 数值模拟

摘　要：　　采用弹塑性有限元法，建立多点模具复杂多接触面的力学模型，对不同材料、不同厚度和不同曲率半径的球形件多点对压成形过程进行数值模拟，分析了冲头最大接触压力的变化过程及其影响因素。结果表明：材料的弹性模量和屈服强度越大，成形件的板厚和变形量越大，所需的成形力就越大，所以冲头的接触压力就越大。　 A mechanics model of multi-point die that contained complicate multi-contact surfaces was built by elastic-plastic finite element method, different materials with different thickness and deformations of spherical surface parts were simulated during the forming process, the variation histories of maximal contact forces of punches and their correlative factor were analyzed. The results indicated that the contact forces of punches became larger and larger along with the increase forming forces, when the elastic modulus and yield strength of material were bigger, the thickness and deformations of parts were also bigger.

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