FEM simulation and experimental research on the AlMg4.5Mn0.4 sheet blanking

Both experiment and finite element method (FEM) simulation were done on the AlMg4.5Mn0.4 sheet blanking with 1, 10 and 20% relative clearance, respectively. The cutting force curves and the cutting surface parameters which can be used to describe the quality of the blankings were measured. Simulation was accomplished by MARC Autoforge software package. Calculated cutting forces are always bigger than measured ones. All difference between experiment and simulation is not greater than 20%. It is feasible doing virtual experiment on workstation to estimate the cutting force and to predict the quality of the workpiece for new material using certain blanking technical parameters.

Stichworte: Experiment; FEM simulation; Sheet blanking

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