

BLANK MATERIAL INFLUENCE IN STAMPING SPRINGBACK

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Abstract:

The paper concerns the evaluation of the influence of the blank material on the springback of intricate shape stamping, the internal reinforcement of the B-pillar of the car body shell after the drawing operation to maintain the dimensions and tolerances of the stamping after the drawing process which are given in the drawing of part. Simulation of the drawing process and consequent stamping springback were carried out by PAM-STAMP 2GTM software, which uses the Finite Elements Method, with the use of blanks from strip steels DX54D, HC220P, HX220BD and HX220YD. Two mesh strategies were compared for drawing tool parts in the PAM-STAMP 2GTM software. The stamping springback was evaluated with the use of the reference point system. Critical areas of deformations and stamping springback were evaluated; simulation results were compared with measurements on real stampings. The most suitable strip steel was evaluated in terms of achieving the minimum size of the springback after stamping drawing.

Keywords:

Drawing; sheet-metal; simulation; springback; finite elements method; 3D measuring device