Control strategies in deep-drawing process

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Controlling the deep-drawing process in stamping production it's a factor which can increase productivity, reduce cost and improve quality. In the presence of operational variations and disturbances specifically to deep drawing process, process control is a difficult task for maintaining precise material flow into the die cavity.

The research presents an overview of the methods and equipment's used for sheet-metal deep-drawing process control. Die try-out with open-loop control, closed-loop machine control of blank holder force (BHF), in-process control and cycle-to-cycle control based on post-process part inspection for adjusting the tooling designs and process variables are described. Finally, a systematic approach based on a segmented-multiple moving draw beads for obtaining good formability, dimensional accuracy and reproducibility are proposed.

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The project proposes the achievement of a unitary vision on the new tendencies from the automotive and aerospatial industries by researching the production chains and the afferent intelligent technologies. The researches take in view the new tendencies applied in the fabtrication of the automotive and aeronautcs industries. The reseaeches have also in view the development of new materials, the application of new digital technologies for the manufacturing of protypes of parts made from news materials, the development of control and inspection algorithms for the carosery parts, the use of efficient technologies for the cutting procedures of parts made from special materials and not in the last case the minimization of manufacturing costs by using the design of simulation models of the manufacturing fluxes.