

# Genetic programming method for modelling of cup height in deep drawing process

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## ABSTRACT

Genetic programming method for modelling of maximum height of deep drawn high strength sheet materials is proposed in this paper. Genetic programming (GP) is an evolutionary computation approach which uses the principles of Darwin's natural selection to develop effective solutions for different problems. The aim of the research was the modelling of cylindrical cup height in deep drawing process and analysis of the impact of process parameters on material formability. High strength steel sheet materials (DP1180HD and DP780) were formed by deep drawing using different punch speeds and blank holder forces. The heights of specimens before cracks occur were measured. Therefore, four input parameters (yield stress, tensile strength, blank holder force, punch speed) and one output parameter (cup height) were used in the research. The experimental data were the basis for obtaining various accurate prediction models for the cup heights by the genetic programming method. Results showed that proposed genetic modelling method can successfully predict fracture problems in a process of deep drawing.

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