

Multi-Objective Optimization of an Aerodynamic Feeding System Using Genetic Algorithm

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Abstract : Considering the challenges of short product life cycles and growing variant diversity, cost minimization and manufacturing flexibility increasingly gain importance to maintain a competitive edge in today's global and dynamic markets. In this context, an aerodynamic part feeding system for high-speed industrial assembly applications has been developed at the Institute of Production Systems and Logistics (IPA), Leibniz Universitaet Hannover. The aerodynamic part feeding system outperforms conventional systems with respect to its process safety, reliability, and operating speed. In this paper, a multi-objective optimisation of the aerodynamic feeding system regarding the orientation rate, the feeding velocity and the required nozzle pressure is presented.

Keywords : aerodynamic feeding system, genetic algorithm, multi-objective optimization, workpiece orientation

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