

عنوان مقاله:

A Heuristic Approach for Optimization of Gearbox Dimension

محل انتشار:

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خلاصه مقاله:

A powerful optimization method is proposed in this study for the minimal dimensional design problem of gearbox. It is a general model that is suitable to use for any series of gear drives system and can extract both dimensional and layout of components-limited optimization design together. The objective function in this study has many local extremes so for avoiding this situation, various constraints have been determined. Then, Particle swarm optimization algorithm has been implemented to speed up the convergence of optimization and elitist particles searched in problem space to find optimum value of goal function until all of them converge to the similar set of values. At the end, Results have been presented in the utilitarian diagrams to obtain optimal parameters from useful diagrams. The results display that the proposed method in this study is better than other reported in last works and it shows optimum volume of gearbox being related to a decrease of not just space but costs, material used to make gearbox component, etc.

کلمات کلیدی:

Reduce Volume, Dimensional Optimization, Particle Swarm Optimization (PSO), Gearbox

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