

### عنوان مقاله:

Multi-Objective Optimization of Plate Heat Exchangers by Employing an Imperialist Competitive Algorithm

#### محل انتشار:

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### خلاصه مقاله:

In this paper, the multi-objective optimum design of plate fin heat exchangers is investigated. To this end, the efficiency and cost as two important factors for the design of heat exchangers are regarded as the objective functions. Fin pitch, fin height, fin offset length, cold stream flow length, no-flow length and hot stream flow length are considered as six design parameters. The ε-NTU method is applied to estimate the heat exchanger pressure drop and its effectiveness. A case study related to a gas furnace in Barez tire group located in the northwest of Kerman, Iran is considered for the constant parameters. The Imperialist Competitive Algorithm (ICA) is used to find the optimal design parameters to achieve the maximum thermal efficiency and minimum consumption cost. The method of the weighting coefficients is applied to change the considered multi-objective optimization problem as a single objective one. Furthermore, the effects of variations of the design parameters on the objective functions are independently .investigated, and the related graphs are presented

## کلمات کلیدی:

Consumption cost, Imperialist Competitive Algorithm, Multi-Objective Optimization, Plate fin heat exchanger, Thermal efficiency

## لینک ثابت مقاله در پایگاه سیویلیکا:

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