عنوان مقاله:

Thermal economic multi objective optimization of shell and tube heat exchanger using BIG BANG BIG CRANCH (Algorithm (BBA

محل انتشار:

سومین کنفرانس نوآوری های اخیر در مهندسی صنایع و مهندسی مکانیک (سال: 1395)

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خلاصه مقاله:

Many studies are performed by researchers about shell and tube heat exchanger (STHE) but the multi objective BIG BANG BIG CRANCH Algorithm technique has never been used in such studies. This paper presents application of thermal economic multi objective optimization of STHE using FA. For optimal design of a STHE, it was first thermally modeled using e-number of transfer units method while Bell–Delaware procedure was applied to estimate its shell side heat transfer coefficient and pressure drop. Multi objective BBA (MOBBA) method was applied to obtain the maximum effectiveness (heat recovery) and the minimum total cost as two objective functions. The results of optimal designs were a set of multiple optimum solutions, called 'Pareto optimal solutions'. In order to show the accuracy of the algorithm, a comparison is made with the non-dominated sorting genetic algorithm (NSGA-II) and MOBBA which are developed for the same problem.

کلمات کلیدی:

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