عنوان مقاله:

Exergy-Economic Optimization of Gasket-Plate Heat Exchangers

محل انتشار:

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خلاصه مقاله:

In this research, using Harris Hawks optimization method, the gasket- plate heat exchangers is studied with an exergy- economic approach. Six parameters of hot fluid inlet temperature, cold fluid inlet temperature, hot fluid mass flow rate, cold fluid mass flow rate, port diameter and the number of plates were selected as design variables. The ratio of hot fluid mass flow rate to cold fluid mass flow rate, λ, is introduced to the analysis of exergy loss. The results showed that using Harris Hawks optimization method, exergy loss and total cost can be reduced by ۷۰% and ۸۱%, respectively. The optimization results showed that minimizing the exergy loss, the efficiency of the gasket- plate heat exchanger increases by ۳۰%. It is also found that for λ>۱, with the increase .of cold fluid mass flow rate, the exergy loss number decreases and for λ<۱, with the increase of cold fluid mass flow rate, the exergy loss number increases

کلمات کلیدی:

Gasket-plate heat exchanger, Exergy loss, Cost, Efficiency, Heat transfer