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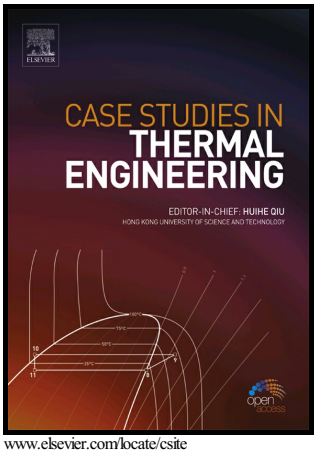

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PII: S2214-157X(17)30341-6
DOI: https://doi.org/10.1016/j.csite.2018.07.009
Reference: CSITE318

To appear in: *Case Studies in Thermal Engineering*

Received date: 24 December 2017
Revised date: 16 June 2018
Accepted date: 23 July 2018

Cite this article as: Ammar Ali Abd, Mohammed Qasim Kareem and Samah Zaki Naji, Performance Analysis of Shell and Tube Heat Exchanger: Parametric Study, *Case Studies in Thermal Engineering*, https://doi.org/10.1016/j.csite.2018.07.009

Performance Analysis of Shell and Tube Heat Exchanger: Parametric Study

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Abstract

Enhancement of heat transfer through shell and tube exchangers stills taking high attention by researchers. The present work investigated the effect of shell diameter and tube length on heat transfer coefficient and pressure drop for shell side with both triangular and square pitches. In addition, the effect of baffle spacing and cutting space on heat transfer coefficient and pressure drop were studied. Moreover, standards fouling rates used for both shell and tube sides to estimate the reduced heat transfer. Increasing shell diameter with a triangular pitch and pull-through floating head recorded 3% increasing in heat transfer coefficient for only 0,05m increasing in shell diameter. While 2.8% increase in heat transfer coefficient for shell side by 0.05m increasing in shell diameter with split-ring floating head and square pitch. Heat transfer coefficient for shell side reduced by 15.15% by increasing baffle space by 0.2 from shell diameter and the pressure drop by 41.25%. Increasing cutting space from 15% to 25% decreases heat transfer coefficient by 5.56% and the pressure drop diminished by 26.3%. Increasing tube