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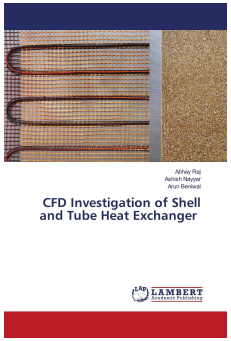

CFD Investigation of Shell and Tube Heat Exchanger

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Analysis of overall Heat transfer in Shell and tube heat exchanger can be done by changing various structural parameters, such as baffle cut, space between baffles, shape of baffles or tube shape and size. In this report, all the analysis is done on the shell side. Analysis of shell side fluid temperature and heat transfer is done by using a commercial CFD package. Study is done on a single pass shell and tube heat exchanger with turbulent flow. Simulation data are obtained for shell and tube heat exchanger with helical tube and inclined baffles (25% and 36% cut) with inclination angle of 5º, 10º and 15º respectively. In this report, simulation is done using CFD (Ansys Fluent) for 5°, 10° and 15° inclination of baffle and it is observed that, for 10° baffle inclination, highest thermal performance is observed as compared to the 5°, and 15°.

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