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Shell and Tube Heat Exchanger

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Abstract: *Heat exchangers are used to transfer heat from fluid at high temperature to fluid at lower temperature. Heat exchangers are used in industrial purposes in chemical industries, nuclear power plants, refineries, food processing, etc. Sizing of heat exchangers plays very significant role for cost optimization. Also, efficiency and effectiveness of heat exchangers is an important parameter while selection of industrial heat exchangers. Methods for improvement on heat transfer have been worked upon for many years in order to obtain high efficiency with optimum cost. In this research work, design of shell & tube heat exchanger with single segmented baffles and analyze the flow and temperature field inside the shell using Autodesk Simulation CFD 2015. When comparing the CFD analysis with experimental results, it was well correlation with negligible percentage of error. Thus, the series of baffles results in a significant increase in heat transfer coefficient per unit pressure drop in the heat exchanger.*

Keywords: Flow, Heat Transfer, Shell & Tube Heat Exchanger, CFD, Baffles

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