

## DESIGN AND ANALYSIS OF PARALLEL FLOW HEAT EXCHANGER WITH BAFFLES

R. SHARAVANAN<sup>1</sup>, G. BOOPATHY<sup>2</sup>, PERIYASAMY<sup>3</sup> & RAMANAN<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Mechanical Engineering, Bharath Institute of Higher Education and  
Research, Chennai, India

<sup>2</sup>Associate. Professor, Department of Aeronautical Engineering; Vel Tech Rangarajan Dr. Sangunthala R&D  
Institute of Science & Technology, Chennai, India

<sup>3</sup>Professor, Department of Mechanical Engineering, St Peter's institute of Higher Education and  
Research, Chennai, India

<sup>4</sup>Senior Engineer, Synce Engineering Service, Chennai, India

### ABSTRACT

Shell and tube heat exchanger is the most common type of heat exchanger, widely used in oil refinery and other large chemical process. The energy present in the exit stream of many energy conversion devices such as I. C engines, Gas turbines etc. goes as waste, if not utilized properly. For example, the heat energy stored in the engine coolant can be utilized in a better way by recovering the heat for heating purposes inside the cabin. It is comparatively economical than the existing heating arrangements, which employ conventional heating coils. So, the present work has been carried out with a view to predicting the performance of a shell and tube heat exchanger in the field of waste heat recovery application. The objective of this project is to design a shell and tube heat exchanger and study the flow and temperature field inside the shell and tubes using ANSYS Fluent R14.5. An attempt has been made to calculate the performance of the above heat exchanger with and without baffles for parallel flow configurations, and the results so obtained have been compared.

**KEYWORDS:** Shell and Tube Heat Exchanger, With and Without Baffles Design & Flow Analysis

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