



**THERMAL PERFORMANCE ANALYSIS OF HEAT EXCHANGER WITH
PERFORATED PIN FINS**

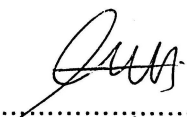
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"I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree."

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ABSTRACT

Heat transfer is important factor that need to be considered in the study of the heat exchanger. This study focused on the heat transfer and the temperature drop that can be increased over a flat surface attached with the perforated pin fins. The objective of this study is to compare the performance of the heat transfer at the heat exchanger by considering the temperature drop between the pin fins and perforated pin fins. The flat surface that act base, has cross section area $250 \times 250 \text{ mm}^2$ and high 80 mm, and the pin fins diameter is 15 mm and high is 50 mm , perforated diameter of 8 mm. The study covers the Reynolds Number range from 0.70×10^5 to 6.27×10^5 and the interfins spacing of 39.5 mm. The model was generated using CATIA V5R16 to create the 3-D geometry of flat surface attached with the pin fins and perforated pin fins and simulation was done using Computational Fluid Dynamic (CFD), STAR-CCM+ software program. The temperature and the final velocity of the both pin fins and perforated pin fins were obtained from the simulation process. This thesis present extensive discussion of the result of the simulation comparison of temperature drop between the pin fins and perforated pin fins at the difference velocity.

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