

Review of: "Numerical Study of Thermal Performance on Fin and Tube Heat Exchanger with Flat Rectangular and Sinusoidal Winglet Vortex Generators"

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Potential competing interests: No potential competing interests to declare.

1. Abstract: Enhance clarity by succinctly summarizing key findings and their significance in the context of existing research.
2. Introduction (Page 1): Better delineate the research gap your study addresses, clearly stating the novel contribution of your work to the field.
3. Figures and Tables: Improve figure and table captions for better standalone comprehensibility, including specifying what each figure/table illustrates and its relevance.
4. Page 3, Model Description: It would be beneficial to include more details about the computational domain's dimensions and boundary conditions to enhance reproducibility.
5. Page 4, Governing Equations: The manuscript could provide justification for the choice of the RNG k- ϵ model over other turbulence models, considering its application to the specific case of vortex generators.
6. Page 5, Table 1: Suggest including properties of the working fluid (air) and aluminum at the specific operating temperatures to account for temperature-dependent property variations.
7. Page 6, Grid Independence Test (Figure 3): Recommend discussing the criteria for selecting the final mesh size in more detail, including the percentage difference in results between the chosen mesh and a finer mesh.
8. Page 7, Velocity Distribution (Figure 4): The discussion on velocity distribution would benefit from a more detailed analysis of how vortex generators impact the flow patterns across different Reynolds numbers.
9. Page 8, Pressure Distribution (Figure 5): It's advisable to include a comparative analysis of pressure distribution for rectangular and sinusoidal vortex generators, highlighting the impact on performance.
10. Page 9, Heat Transfer Performance (Figure 6): The manuscript could enhance the explanation of how the sinusoidal winglet's geometry contributes to its superior performance compared to the rectangular winglet.
11. Page 10, Overall Thermal Hydraulic Performance: More detailed statistical or analytical methods to validate the computational results against experimental or literature data would strengthen the study's credibility.
12. Conclusions: The conclusions could better summarize the specific conditions under which sinusoidal vortex generators outperform rectangular ones, including any limitations or conditions of the study.
13. References: Ensure all referenced articles are accurately cited within the text, and consider including more recent studies to provide context on the state-of-the-art in vortex generator research.
14. Discussion Section: Expand the discussion to include potential implications of your findings for practical applications in

heat exchanger design and operation.

15. Technical Details: Clarify any assumptions made in the modeling and analysis, including their justification and impact on the study's findings.