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### Experimental analysis of gas to water two phase closed thermosyphon based heat exchanger

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Wickless heat pipes have been attracting increased attention in the last two decades due to their reliability and high heat transfer potential per unit area. Their most common application is in the process industry, when coupled to waste heat recovery devices. Heat pipe-based heat exchangers offer many advantages when compared with conventional waste heat recovery systems, advantages that are detailed in the current work. The design of such devices, however, is not a straightforward process due to the complex modes of heat transfer mechanisms involved. In this paper, the characterisation of a cross-flow heat pipe-based heat exchanger is studied experimentally and theoretically, taking advantage of correlations currently available in literature. A design tool with the purpose of predicting the performance of the test unit was also developed and validated through comparison with the experimental results. The developed model was validated through the use of a purpose-built experimental facility, which supplied the full range of variables considered.

#### Biography

J Ramos is a PhD student at the University of South Wales (USW), UK. His research project is industry-led and is the result of a partnership between Econotherm (UK) Ltd and the University of South Wales. The project is funded by the Knowledge Economy Skills Scholarship. He has received his Bachelor degree in Mechanical Engineering in the USW in 2011 and has since been reading for his PhD topic.

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