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Optimization of Copper-Water Negative Inclination Heat Pipe with Internal Composite Wick Structure

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Abstract : Theoretical optimization of a copper-water negative inclination heat pipe with internal composite wick structure has been performed, regarding a new introduced parameter: the ratio between the coarse mesh wraps and the fine mesh wraps of the composite wick. Since in many cases, the design of a heat pipe matches specific thermal requirements and physical limitations, this work demonstrates the optimization of a 1 m length, 8 mm internal diameter heat pipe without an adiabatic section, at a negative inclination angle of -10º. The optimization is based on a new introduced parameter, LR: the ratio between the coarse mesh wraps and the fine mesh wraps.

Keywords : heat pipe, inclination, optimization, ratio
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