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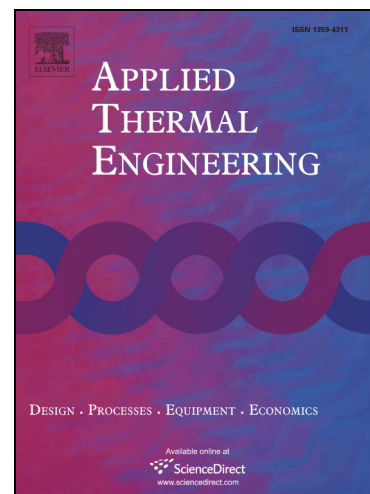
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Experiment research on influence factors of the separated heat pipe system, especially the filling ratio and Freon types

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Abstract: This paper mainly studied the influence factors of separated heat pipe system. Such factors include the type of Freon coolant and filling ratio. R134a, R22 and R410A are tested. Separated heat pipe system can be used in data center cooling. In order to be more similar to the real data center cooling system, there are two evaporators which are connected in parallel and the system uses one plate heat exchanger as condenser. A room in constant temperature controlled by enthalpy difference laboratory is used as heat source while chilled water is heat sink. The paper analysis the relationship between filling ratio and heat transfer capacity and make a comparison between the heat transfer capacity of each coolant. The experiment results find that with the increasing of filling ratio, the heat transfer capacity first increases, then almost remains constant. Finally, when filling ratio is high enough, heat transfer capacity decreases. The reason of this phenomenon is given in the paper. The results of the experiment are useful to engineering.

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