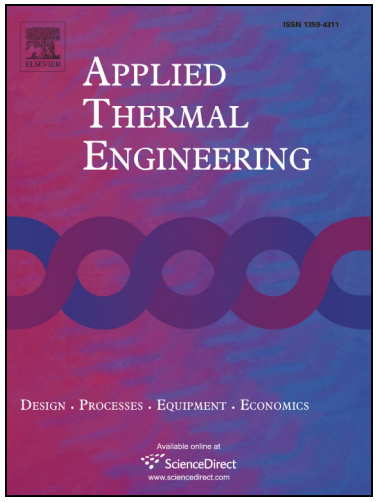

Research Paper

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

Tao Ding, Han wen Cao, Zhi guang He, Zhen Li

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

*Tao Ding+, Han wen Cao+, Zhi guang He, Zhen Li**

Key Laboratory of Thermal Science and Power Engineering of Ministry of Education, Department of Engineering Mechanics, Tsinghua University, Beijing, 100084, China

Tel: 010-62772918; E-mail: lizh@tsinghua.edu.cn

+ These two authors contributed equally to this work

**Corresponding author*

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.