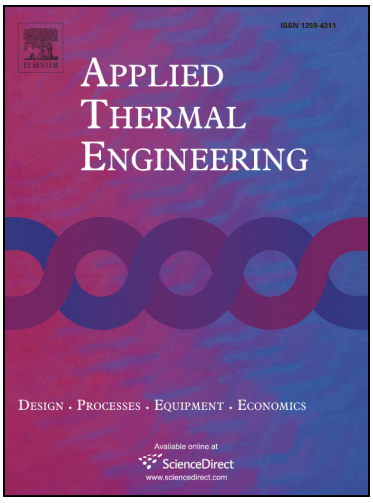

Experimental investigation of a novel magnetically variable conductance thermosyphon heat pipe

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"Experimental investigation of a novel magnetically variable conductance thermosyphon heat pipe"

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Abstract

In this study, a novel Magnetically Variable Conductance Thermosyphon Heat Pipe (MVCTHP) was investigated experimentally. The possibility of deactivating a portion of evaporator length and subsequently altering heat pipe resistance by positioning a steel ball inside the evaporator and moving it by an external magnet was studied. The effect of various ball positions in the evaporator and inclination angles on heat pipe performance was studied at 30, 60, 90 and 120 Watts. The results indicated that at a given heat input, moving the ball away from the beginning of the evaporator of heat pipe increases its thermal resistance. Furthermore, by increasing heat input, MVCTHP performance for various ball positions improved. The best MVCTHP performance among 30, 60 and 90° inclination angles was achieved at 90°.

Keywords: Variable conductance, Thermosyphon heat pipe, Thermal management