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Experimental Study on the Thermal Performance of Grooved Heat Pipe using Nanofluids

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Abstract:A heat pipe is a heat transfer device which is used to cool the heat transfer equipments by means of self-contained structure with a capillary action of grooved surfacewith a two phase flow working fluid.Nanofluid is employed as working medium for 600 mm grooved circular heat pipe. The nanofluids considered in this work are Copper oxide, Iron oxide, Titanium oxide and Grapheneoxidewith DI water as base fluid. The average diameter of nanoparticles is50 nm. The experiment was performed to measure and compare thermal resistance of De-Ionized water andnanofluid filled heat pipes. At the same charge volume the thermal resistance of heat pipe withnanofluid is greater as compared with DI water.
Keywords:Grooved heat pipe,Nano fluids, Thermal efficiency, Thermal resistance.

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