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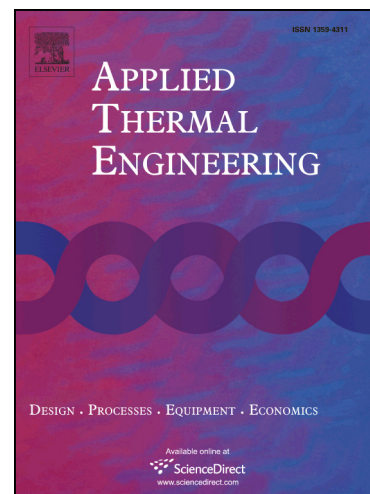
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**Experimental Study on Heat Transfer of Jet Impingement with a Moving Nozzle**

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**Abstract**

Water jet impingement heat transfer is widely used in electronic component cooling, steelmaking, nuclear power plants and many other high heat transfer rate applications. This paper describes experiments with a jet from a moving nozzle impinging a surface using a stepping motor to control the nozzle. The effect of nozzle velocity on the heat transfer rates at different heat fluxes and flow rates are investigated. The experimental results show that a moving nozzle performs better than a fixed nozzle for reducing the maximum temperature difference of the heating surface and the average liquid film thickness, which results in steadier heat transfer rates and a more uniform temperature. Furthermore, a moving nozzle enhances the heat transfer in the convection by more than forty percent. Here, a higher nozzle velocity better enhances the heat transfer and temperature uniformity.

**Key words**

Enhancement, Heat transfer, Jet impingement, Moving nozzle, Uniform temperature

**Introduction**

Current trends in electronic component application show an increasing need for efficient heat removal in microminiaturization systems with this need predicted to increase into the foreseeable future [1, 2]. For heat dissipation at high heat flux conditions, jet impingement is one of the most effective methods to

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