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## Heat pipes: A versatile yet an underrated device

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## Heat pipes: A versatile yet an underrated device

Heat pipes are super-efficient heat transfer devices that can transfer large amounts of heat (equivalent to that required for boiling water) at high speeds (250 times faster than an equivalent copper pipe) over large distances (~10ft). This is achieved through simultaneous evaporation and condensation of a fluid that is sealed inside a heat pipe. Heat pipes does not require any external power source to operate and this feature makes it an attractive option for industrial (engine cooling, electronics cooling) and consumer (air-conditioning, laptops, and cell phones) based applications. In spite of such versatility, heat pipes remain one of the underrated technologies of the current era, unknown to laymen.

The choice of pipe material, size and the fluid inside, all have an effect on the performance of heat pipes. This research seeks to understand and maximise the heat transfer capability of heat pipes by modifying its performance parameters.