The Study of Negative Pressure Air Vent for Cooling System

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ABSTRACT

This paper is intended to develop an auxiliary apparatus for eliminating the air choking phenomenon and increasing the airtight after discharging of air, which is actually applied to the cooling system of a commissioned engineering. The experimental parameter consists of internal diameter of water pipes, friction loss, height of lift and water flow rate. For starting, the air chokes in the pipe. This will result in the overflow of the upper tank. This setup can help let go the choked air. For normal operation mode, the vertical appropriate location of the apparatus can reduce the local pressure of this setup to even lower than ambient pressure. This will stop the leakage of water during running mode. In order to achieve the needed water lift and flow rate, the chart be established to explore the influence of discharging air and preventing water with varied position of this apparatus. Therefore, the designer can alter parameter easily and get the design optimization according to the performance and space limitation.

Keywords : Open cooling system ; the air-discharging apparatus ; friction loss ; height of lift ; water flow rate ; space limitation

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