

Abstract

Pumps are fluid machines used for lifting liquids from a low level to high level or for delivering liquids from a region of low pressure to one of high pressure. They can also be used for pumping liquid from a higher pressure to a lower one through a long pipe line or one of very high resistance. They operate by creating a pressure difference between suction side and delivery side of moving element of pump.

The pump is designed by 120 m³/hour capacity, 20 m of head, and 70 - 80 °C of operation temperature. The centrifugal pump with radial flow and single curvature blade is chosen for that purpose. As prime mover of pump is selected 3 phase induction motor, 1450 rpm, and 12.5 hp. The pump is used for lifting condensate from a heat exchanger to a kettle.

The parts of pump which are designed are shaft, impeller, inlet element, outlet element, volute, bearing, coupling, peg, and some other components. The grease is used for lubrication of roll bearing. The next step is calculating for cavitation, efficiency, and characteristics of pump.