
Design and Fabrication of Cooling Tower

Cooling towers are heat removal devices used to transfer process waste heat to the atmosphere. Cooling towers may either use the evaporation of water to remove process heat and cool the working fluid to near the wet-bulb air temperature or in the case of closed circuit dry cooling towers rely solely on air to cool the working fluid to near the dry-bulb air temperature.

Common applications include cooling the circulating water used in oil refineries, chemical plants, power stations and building cooling. Industrial cooling towers can be used to remove heat from various sources such as machinery or heated process material. The primary use of large, industrial cooling towers is to remove the heat absorbed in the circulating cooling water systems used in power plants, petroleum refineries, petrochemical plants, natural gas processing plants, food processing plants, semi-conductor plants, and for other industrial facilities such as in condensers of distillation columns, for cooling liquid in crystallization, etc.

Over a last decade, great strides have been in improving the performance of conventional cooling towers. Heat is dissipated from the surface of a body of water by convection, evaporation and radiation. This offers an inherent advantage in making it possible to cool the water to a temperature lower than the dry bulb temperature. A mechanical draft cooling tower is used to increase the cooling capacity.

The fabrication of the designed cooling tower was carried out using locally available materials such as mild iron sheets, pipes and fittings, extraction fan, angle iron, fiber glass, plastics etc. Various production processes such as cutting, welding, drilling and plumbing were employed. The fill materials are increase the liquid and gas contact. For the increasing of L/G ratio the heat transfer rate between liquid and gas also to be increase. The ultimate aim of this project is to fabricate and performance analysis of induced forced draft cooling tower by changing fill material there by studying the increase in efficiency of cooling tower. By using induced forced draft fan waste water can be reduced.

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