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SCIENTIFIC & RESEARCH PROJECTS

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Project Title:

A Comprehensive Approach to an Optimum Design & Simulation Model of a Mechanical Draft Wet Cooling Tower

Abstract:

The present paper describes the designing of a thermally and economically optimum mechanical draft counter-flow wet cooling tower. The design model allows the use of a variety of packing materials in the cooling tower toward optimizing heat transfer. Once the optimum packing type is chosen, a compact cooling tower with low fan power consumption is modelled within the known design variables. Moreover, a simulation model of the cooling tower is developed for studying the tower's performance as the main component of a water cooling system. The model also allows the influence of the environmental conditions on the thermal efficiency of the cooling tower to be considered. The thermal performance of the cooling tower is simulated in terms of varying air and water temperatures, and of the ambient conditions. The model is tested against experimental data. The suggested design and simulation algorithms of cooling tower are computed using Visual Studio.Net 2003 (C++).