Energy storage water cooling system frequency conversion control

Does frequency conversion control reduce energy consumption of cooling water pump?
Figs. 13 and 14 show that,although the cooling water pump was controlled by constant frequency,the energy consumption of the cooling water pump and the cooling tower in the entire cooling system decreasedafter optimizing the frequency conversion control of the cooling tower fan.

What parameters should be adjusted for energy-saving control of refrigeration systems?
They proposed that energy-saving control of refrigeration systems should adjust the set values of the following four parameters in real time: the chilled water outlet temperature, the chilled water temperature difference, the cooling water outlet temperature, and the cooling water temperature difference.

Does optimizing the frequency of cooling towers save energy?
By optimizing the frequencies of pumps and tower fans,the total system energy consumption can be reduced by 12%-13% compared to the fixed dual setpoint-based strategy with range and approach setpoints of 4 °C and 2 °C. In contrast,the energy-saving potential of optimizing the cooling tower sequencing is insignificant.

How to determine the operating frequency of a cooling tower fan?
The operating frequency of the cooling tower fan is mainly determined based on the heat dissipationof the cooling tower and the optimal inlet temperature of the cooling water.

What are the output results of a cooling system?
The output results include: hourly operational numbers for the chillers, chilled water pumps, cooling water pumps, and cooling towers; hourly operating frequencies of the cooling tower fans; and outlet water temperature of the cooling towers. The overall optimization flow chart of the system is shown in Fig. 9. Fig. 9.

How much energy does a refrigeration system save?
The result indicates that the energy savings of the chillers,the chilled water pump,the cooling water pump,and the cooling tower over the entire refrigeration season were 279927.9 kWh,32051.9 kWh,14707.6 kWh,and 8293.1 kWh,respectively,and the rate of saving power was 9.42%,8.04%,5.67%,and 14.64%,respectively.

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