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SCIENTIFIC & RESEARCH PROJECTS

Project No.: 07 **Year:** 2021

Project Field: Miscellaneous Publications

Publisher: Journal of Mechanics & Industry, Vol. 22, pp. 9, 2021

Project Title:

Variable flow and optimization of chiller loading effect on energy saving for screw vapor compression-single effect absorption hybrid chiller plant in hospital mechanical room - case study: Tehran heart

Abstract:

Chiller plants are the most energy consuming system during summer season in residential, commercial and hospital buildings. The highly variable cooling demand of the buildings connected to a hybrid chiller plant included absorption and vapor compression chillers to achieve higher energy efficiencies is one of the important issues. Cooling load sharing strategies and apply the variable water flow system in chiller plant have a significant impact on energy consumption and consequently with more productivity and environmentally protected. This paper examines the behavior and pattern of energy consumption in a hybrid chiller plant that includes a combination of two air-cooled screw vapor compression and three single effect absorption chillers. In order to properly understand the pattern of energy consumption, an existing mechanical room in a hospital in Tehran has been studied for five months, and its energy consumption has been compared with the optimized model. The results indicate that the sequence of the chiller function and the way in which they are placed in the circuit during a partial load, is in highest importance in view point of energy saving also by Applying of variable water flow system for optimized chiller loading the more energy saving is achieved for hybrid absorption and vapor compression chiller plant.