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A New Swarm Intelligence Approach for Optimal Chiller Loading for Energy Conservation

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Abstract

This paper employs a recent swarm intelligence technique to solve optimal chiller loading (OCL) problem, namely differential search (DS) algorithm. In general, significant energy savings can be obtained by optimizing chiller operation and design in heating, ventilation and air-conditioning (HVAC) systems. In this paper, partial load ratio (PLR) of the chiller is used as parameters to be optimized where the power consumption in kW is used as objective function to be minimized. In order to show the effectiveness of the proposed technique, the comparison with other techniques has been done and analyzed.

1. Introduction

Optimal chiller loading (OCL) problem emerge due to awareness for energy conservation especially for multiple chiller system which requires huge power consumption. Multiple chiller system is typically utilized in air conditioning system since it has ability to operate flexibly, less disruption maintenance and can be operated as standby capacity. On the other hand, to operate the system optimally so that the energy

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