

DATA CENTER COOLING USING SEPARATED HEAT PIPE SYSTEM

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Abstract

This paper mainly introduced the separated heat pipe system for heat dissipation in data center. The system uses chilled water as heat sink, in winter, cold ambient air is used to produce chilled water, while in summer, as the outside air temperature is higher than the room temperature, the chiller is open to get chilled water. In a word, chiller does not need to operate all year round, as a result, a lot of energy can be saved. Compared with traditional computer room air conditioning system, evaporator is installed inside the front and back plate of the racks, once heat is generated from IT equipment, it is soon dissipated. The separated heat pipe system has well air distribution so the problem of hot spots and cold and hot air mixing can be avoided. Tests were carried out in summer and winter to understand the operation performance of the separated heat pipe system. In the tests, thermal equilibrium and temperature distribution are tested, the results show that this system can provide a safe and reliable working condition for IT equipment.