Nominee: Vertiv Integrated Systems GmbH

Nomination title: Knürr DCD Rear Door Heat Exchanger

Vertiv designs, builds and services mission critical technologies that enable the vital applications for data centers, communication networks, and commercial and industrial environments. We support today's growing mobile and cloud computing markets with our portfolio of power, thermal, infrastructure management products, software and solutions, all complemented by our global service network. Passive cooling unit for maximum energy efficiency. Vertiv™ Knürr® DCD Cooling Door is an air-water heat exchanger integrated into the rear door of a server rack. The heat exchanger is able to absorb heat loads from server racks of up to 50 kW. Knürr® DCD is designed for newly constructed and existing data centers. The product supports the cold room concept. Due to lack of fans the product enables maximum possible energy efficiency. An essential product feature is the fixed piping of the water circuit through water-bearing hinges. Due to the ultra-compact design, Knürr® DCD

ensures optimum floor space utilization and hence very low room costs.

With the DCD 50, an air-water heat exchanger is integrated into the rear door of a server cabinet, which serves to dissipate heat loads of up to 50 kW. Cooling occurs when the warm server exhaust air flows through the heat exchanger. The cooling air flow through the fans of the servers is forced through the heat exchanger and brought to room temperature for further cooling.

Higher heat loads on the IT equipment, a reduction in the influence of the heat exchanger on the servers and an improved energy efficiency of the overall cooling system characterize the development of the DCD50. A simple product with a small foot print and no electrical power consumption was designed.

o In brief

o Simple solution

o Energy-efficient (minimum influence of the servers)

o Less temperature difference air to water

o Lower pressure drop

o Higher performance

HPC technologies and microservers are increasingly being used in commercial applications, colocation and cloud services. This means increasingly high power densities per rack of up to 45 kW and more, even outside scientific or R&D applications. The project focused entirely on resource efficiency: Lowest possible material consumption at highest power density, design of the heat exchanger with lowest possible hydraulic pressure losses and smallest possible temperature differences to the water temperature in order to further optimize the energy efficiency of the chilled water supply. Through several optimization steps, they were initially achieved with contradictory development goals: more cooling capacity with low energy consumption. This will significantly reduce investments for retrofitting in data centers and also for the construction of new data centers.

Why nominee should win

High cooling capacity

Response to the obvious strong rise in heat loads per cabinet

High energy efficiency

Simple design

Flexible connection to racks