

Press release

Menerga at the 2011 ISH:

Air cooling in data processing centres with an EER of 12

- **Combination of indirect free cooling and evaporation cooling exhibits high figures in performance**
- **Low electricity consumption and low peak loads**
- **Long-term monitoring confirms EER in practice**
- **Operating costs reduced up to € 2,000 at only 9 kW of cooling output**
- **Savings potential visualised by apprentice project at ISH stand**

Frankfurt / Mülheim an der Ruhr, 15 March 2011 – Based on comprehensive calculations on the new Adcoolair cooling unit's energy efficiency, Menerga GmbH has yielded an average EER of 12 for the complete system, including fans, compressors and pumps. The HVAC manufacturer reported this at the 2011 ISH in Frankfurt. The basis for the calculations were the climate conditions in Essen, with supply and discharge air temperatures of 20°C and 34°C, respectively. The company was also able to verify this outstanding efficiency ratio under practice conditions in long-term prototype monitoring.

“The combination of indirect free cooling and evaporation cooling makes it possible for us to achieve system efficiency that is nearly twice that of conventional air cooling units or direct free cooling” explains Managing Director Dr.-Ing. Jürgen Röben. “Currently, about 37% of a data processing centre's electricity consumption is used for cooling and air distribution. We can reduce that to less than 10%, which in terms of figures improves the PUE efficiency indicator from 2.0 to 1.3.”

The calculations on the new air cooling units were based on a typical server room with a cooling load of 50 kW. Supply and discharge air temperatures needed to be maintained at 20°C and 34°C, respectively, with relative humidity in the entire room being 20% and 80% throughout the entire year. The Mülheimer manufacturer's system met these demands in the simulation with an annual energy consumption of only 36,482 kWh, thereby achieving an EER of 12.0. The peak load of input power was not more than 9 kW according to information provided by the

company. Water consumption for the “adiabatic” cooling system was also only 2 m³ per MWh of cooling.

Furthermore, a supplementary assessment of 7 months of operation of a prototype system in Essen with a nominal air output of 2,500 m³/h and a cooling output of 20 kW confirmed these excellent results. Since there was reserved capacity for an expansion to the data processing centre, the cooling load was a maximum of 9 kW over the observation period. From July 2010 to January 2011, the air cooling unit discharged 32 MW of heat with 3 MWh of energy consumption (EER = 10.6). Since relatively cool months will be coming until June arrives, the manufacturer is also assuming an EER of 12 for the entire year. Compared to the previously installed air cooling unit without free cooling, the system has already saved 5,360 kWh of electricity and just over 3 tonnes of CO₂. Despite the low cooling load, one can count on seeing an overall annual reduction in operating costs of 1,500 to 2,000 euros.

The HVAC manufacturer provided an illustrative presentation using its own installation at its ISH stand. This was a project realised by the company’s industrial and commercial apprentices in an interdisciplinary manner and entirely on their own. The project compared the electricity consumption of an Adcoolair unit with that of a conventional system with 20 kW of cooling output and calculated the associated operating costs. The Mülheimer company then donated the equivalent of the savings yielded to the Ruhr West University of Applied Sciences for study research in the field of energy technology.

Further information is available from Menerga AB, Terminalgatan 1, 235 39 Vellinge, Tel.: 040-45 33 80, www.menerga.se, info@menerga.se.

Photo



The Adcoolair air cooling units for data processing centres – here the prototype system from Essen – achieve an EER of 12 and work nearly twice as efficiently as conventional systems.

Photo: Menerga GmbH
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