JAEGGI

www.jaeggi-hybrid.ch

Equinix AM3 Amsterdam

Winner of the “Green Data Center Award 2012”

With more than 95 IBX data centres in 31 major economic centres, Platform Equinix is a leading worldwide provider. The company is striving for the top position, not just in terms of IT but also in the implementation of energy efficiency. The aim of the recently constructed data centre on the AM3 Science Park in Amsterdam was to achieve the greatest possible energy efficiency.

At 25 %, depending on the hardware, cooling represents the second largest energy consumer in recently constructed data centres, with the percentage being even higher in older centres. This means that there is considerable potential for energy savings. Using an innovative concept, which is based on 100 % water – without any chemicals/biocides –, geothermal aquifer storage and JAEGGI’s hybrid dry coolers (HTK Hybrid High Performance) , Equinix AM3 Science Park Amsterdam won the Green Data Center Award 2012.

JAEGGI hybrid dry coolers save water

The system doesn’t just save energy but also water, as JAEGGI has developed its hybrid dry coolers to be water-saving. During colder months or partial load operation, the cooler operates in dry mode only, with convective heat transfer to the ambient air. Only when the required cold water temperature can no longer be achieved in this way, will the wetting circuit cut in. By making use of the enthalpy of vaporisation (latent heat) of the prepared wetting water, the dry coolers operate in an energy-efficient manner.

In addition, the use of IE2 energy efficiency rated speed-controlled axial fans and drive motors, monitored by a complex *HYBRIMATIC* control system, helps to reduce energy consumption. JAEGGI’s hybrid dry coolers operate without vapour plumes, with a system tested for aerosol output and a secure system for preventing the discharge of contaminated droplets (e.g. containing legionella), and are particularly quiet and multifunctional. Redundant design and high availability of components, which are selected in accordance with the criteria of the eco-design directive, round off JAEGGI’s sustainable product concept.

JAEGGI Hybridtechnologie AG
Hirschgässlein 11
CH-4051 Basel

Member of Güntner Group GÜNTNER

▲ The centrepiece of the concept: JAEGGI Hybridtechnologie AG's hybrid dry coolers

▲ Amsterdam University also benefits from the new concept as a neighbour of the data centre, which provides it with surplus heat for its heating.

Example of the system at Equinix AM3 Amsterdam

Specifications

Cooler type	HTK 3.24/10.9-2S-P3-CU-SLNF
Quantity	4
Total thermal output for this configuration	11.258 kW for 4 coolers

Product Side

Cooling medium	0 % Glycol / 100 % Water
Required medium temperatures (Infeed/Outlet)	32 °C / 9 °C
Medium flow rate for coolers	421.3 t/h

Air Side

Fan speed	84 %
Maximum power required by fans and pumps	4 x 9,6 kW +2 x 1.2 kW per device

Total Wetting Water Consumption for 4 Coolers

For air condition	5 °C / 58 %
Maximum additional water requirement for all devices	10.1 m^3/h

Cooler Configuration

Cooler dimensions (LxWxH)	11 m x 3 m x 4.9 m
Operating weight per cooler	18,961 kg

The entire re-cooling power used by the JAEGGI hybrid dry coolers installed on the AM3 Science Park is 12 MW.

The usable EER value (Energy Efficiency Ratio = $Q_{thermal}$ / $P_{electrical}$) for an indirect comparison is 73 for the fabled EER in this design case; for refrigeration equipment, the EER values currently achieved by the best makes are between 9 and 15.

The result of the concept is an overall reduction in energy costs of more than 100,000 Euros a year for both partners – Equinix and Amsterdam University.

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