

Case Study

weisstechnik implements air conditioning technology for climate-neutral data centre

WHY

Building of an innovative data centre
Electrical current from 100% wind power
Waste heat used for algae cultivation

HOW

240 m² greenhouse above the data centre
Highly efficient, flexible air conditioning technology with integrated control

WHAT

Colocation area with 28 racks
High-precision air-conditioning units with direct free cooling for server cooling and heat recovery

Why - The challenge.

Working together with Eschenburg EKK and the Dierck Group, the data centre operator, Windcloud, has developed an innovative concept for climate-neutral data centres.

The data centre in Enge-Sande/Schleswig-Holstein is operated 100% with regionally generated wind power. The waste heat at an optimum temperature of 35.9 °C heats a greenhouse algae with a floor space of 240 m² above the data centre. In addition, it is also used for drying the algae after harvesting.

In order to secure project success, the air conditioning technology must work extremely energy-efficiently. Furthermore, since the project is being developed with a high degree of dynamism, it must be particularly flexible to use.



How - The idea.

Due to the good experience with past projects, the company responsible for the planning, Eschenburg EKK, decided early on in favour of **weisstechnik** as a partner for the air conditioning technology.

At the location in Schleswig-Holstein, the outside temperatures are on average around three degrees below the temperatures in metropolitan regions where many data centres are located. In order to take advantage of this location and achieve the highest possible system efficiency, air conditioning units with direct free cooling were used.

In this case, the outside air is supplied directly into the data centre for cooling. If necessary, mechanical cooling is automatically switched on in addition.

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What - The solution.

To ensure the required high energy efficiency and operational reliability, Vindur CoolMaster FC precision air conditioners with direct free cooling were used. Due to the very low room height in the data centre, they were customised. Each air-conditioning unit has a cooling capacity of 64 kW and an air flow of 16,000 m³/h.

The air conditioning units are directly connected to the outside air via their special housing design, so that this can be used preferentially for cooling. The outside air supplied is reliably cleaned by an F7 particulate matter filter.



Product selected: Vindur® CoolMaster 160.4 DXD FC

The air conditioning is based on the cold and warm aisle principle. The cold outside air is mixed with warm indoor air to the desired temperature as required and blown into the cold aisle enclosure via a raised floor. The heated release is transported to the algae greenhouse via a duct system without any further effort. There, it is used for cooling in summer and for heating the algae environment in winter.

Services at a glance

- Air conditioning consultation
- Construction of the redundant air conditioning technology
- Integration of the mechanisms for the free-cooling functions in the duct system
- Adaptation of the technology to the climate requirements of server cooling and algae cultivation

