Case Study

weisstechnik implements customer-specific new development for mobile switching stations

WHY	HOW	WHAT
Renewal of outdated air-conditioning technology for telecommunication systems	Development of a customer-specific solution adapted to the special requirements	New development, test and integration of an energy-efficient free cooler series

Why – The challenge.

Vodafone GmbH is one of the largest mobile phone service providers in Germany. They offer mobile phone services, DSL, landlines and much more. In order to operate the nationwide mobile network, a large number of mobile switching stations are available throughout Germany. In many places, however, the respective air-conditioning technology has already been in use for more than 20 years and needs to be renewed.
The requirements vary from location to location, but the cooling must always be energy-efficient. To meet this requirement, **weiss**technik has developed, tested and successfully integrated a new series of units into the customer's systems: the Vindur CoolMaster DX iFC. The precision air conditioning unit is adapted to customer-specific needs and is therefore available in three sizes.

How – The idea.

The Vindur CoolMaster DX iFC is a room-based precision air-conditioning unit that works extremely energy-efficiently thanks to indirect free cooling. The intelligent combination with water-cooled direct expansion guarantees maximum server safety and performance. Possible interfering factors in the outside air are completely excluded. The unit is designed as an efficient complete solution for a wide range of requirements, in order to always be ready for optimum use even under a wide range of different basic conditions. It is made up of a compact unit set up in a server room with integrated cold unit and a dry cooler connected via a closed cold water circuit.

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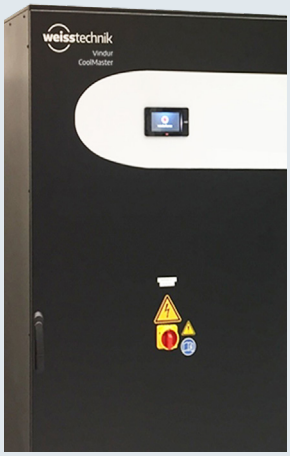
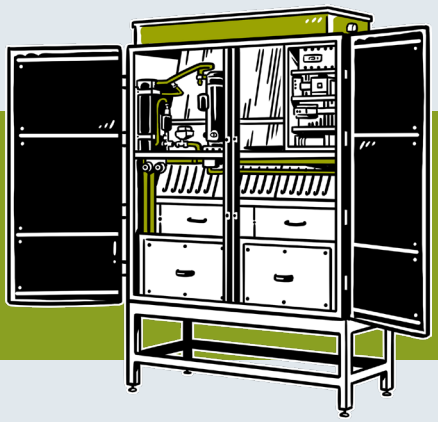
What – The solution.



The precision air-conditioning units can be set up flexibly and are also suitable for rooms without an external wall, for example in the basement area or inside the building. They are also freely scalable. This means the cooling solution can grow with requirements at any time. Every precision air-conditioning unit is assigned to an outside unit in this case. Thanks to intelligent control, the devices can be networked and run in master/slave mode.
Up to a maximum outdoor temperature corresponding to the operating parameters, Vindur CoolMaster DX iFC works in indirect free-cooling mode. If the outdoor temperature or heat load increases, the compressor (DX) automatically switches on in a power-controlled manner. If free cooling cannot be used at all due to high outside temperatures, the unit switches completely to mechanical cooling. Thus the system always independently selects the optimum operating mode.

Product selected: Vindur® CoolMaster DX iFC

With indirect free cooling, the cooling medium (water/glycol) is routed from the outdoor unit to the free cooling heat exchanger, where the hot air discharged by the servers is cooled. The cooled supply air is then blown into the raised floor of the server room. In mechanical cooling mode, the compressor and condenser generate the required cold and the air is cooled via the evaporator. In the dry cooler, the cooling medium is cooled by the outside air and routed to the precision air-conditioning unit by a pump. This prevents possible contamination in the outside air, such as exhaust gases, pollen or dust, from entering the server room. The cooling circuit with evaporator, the free-cooling heat exchanger and the entire control system are integrated in the compact precision air-conditioning unit. Thanks to the special layout, the particularly large heat exchanger surface ensures maximum free cooling performance on the smallest footprint.



Services at a glance

- Customer-specific new development
- Subsequent test phases
- Successful implementation in the customer's system

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