

Case Study

weisstechnik creates customised solutions
for vertical farming

WHY

Precise air-conditioning is necessary for optimum plant growth in vertical farms

HOW

Customised air-conditioning solution with energy-efficient heat recuperation

WHAT

Vindur[®] Compact 160.4 DXU

WHY - The challenge.

Vertical farms use different farming methods, but they have similar requirements. Additionally to lighting and irrigation, air-conditioning technology plays a decisive role. Plants are only able to grow ideally with precisely adjusted temperatures, humidity values and air ducting. In addition, an intelligent air-conditioning solution uses the waste heat to increase the supply air to the required temperature in dehumidification mode by reheating through internal heat recuperation

HOW - The idea.

With years of experience in both vertical farming and air-conditioning solutions in general we know what it takes. Our air-conditioning units are compact and offer flexible air ducting and connection options. Precise control and monitoring of temperature and humidity requirements are no problem thanks to intelligent control systems. In addition, our units meet the highest hygiene standards, such as VDI 6022.

For this case, the air drawn into the air conditioning unit is filtered, cooled and dehumidified by the evaporator. Subsequently, it is heated by the reheat in refrigerant circuit so that no additional energy is necessary. The electric heating is no longer required, since the reheat provides enough heating power.

The residual condensation heat is drawn off either via a water-cooled or air-cooled condenser.



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WHAT - The solution.

The highlights

- In order to secure plant growth if the air-conditioning fails, the cooling, dehumidifying and air capacity is divided between 2 units, thus creating 50% redundancy
- Doubling of the standard reheat capacity by increasing the heat exchanger surfaces, thus making electric heating unnecessary
- Condensation pump insensitive to soiling in the water (e.g. dust, slime, biofilm)
- Refrigerant quantity is reduced to less than 10 kg per circuit with the water-cooled version
- UL certification of the air- and water-cooled unit technology for the North American market
- Global service and response time contracts

Product selected: Vindur[®] Compact 160.4 DXU

Specifications

Air capacity:	7,000 - 16,000 m ³ /h
External compression:	up to 1,000 Pa Fan
Control:	Inlet nozzle
Measurement Filtering:	F9
Cooling:	Air- and water-cooled
Cooling capacity:	45 kW
Heating:	Reheat
Heating capacity:	50 kW
Unit version:	VDI 6022

