Air handling solutions for crop cultivation

Maximum flexibility – Customised Air handling systems

Your strong partner for agriculture solutions

The global population continues to grow, while the amount of available fertile farmland is steadily decreasing. This calls for new methods of cultivation – more efficient, more sustainable, and tailored to the challenges of today and tomorrow.

Discover the power of advanced climate technology for the agriculture of the future. Technologies such as greenhouse farming, vertical farming and indoor farming require smart HVAC solutions. WOLF is your specialist in climate control for vegetables, herbs, ornamental plants, medicinal crops and insect cultivation.

Our systems ensure an optimal indoor climate in which temperature, humidity and air quality are perfectly balanced. This promotes product quality, sustainability and energy efficiency. We think along with you from the initial design to delivery and maintenance. With tailor-made HVAC solutions, together we build a stable, future-proof cultivation environment.

With WOLF, you invest in proven German engineering – for maximum reliability, efficiency, and yield.

Technical and economic efficiency

Solutions that significantly increase your productivity per area while also being energy-efficient and hygienic are the key to your economic success. When planning your individual ventilation solution, WOLF takes into account the average climate conditions at your location, the specific requirements of your planned crop, and the requirements and regulations for the planned or existing building.

Conventionally, air in a greenhouse is actively dehumidified by energy-intensive mechanical cooling, which separates condensate. However, it is much more efficient to dehumidify the air passively in a plate heat exchanger and only actively dehumidify it when necessary. This does not only save money in operating costs but in addition also reduces the CO_2 footprint of your crops and your production.

Since plants have different requirements for optimal humidity during their growth phases, for example, the air can be humidified or dehumidified flexibel as needed.

For example, Tulips are extremely sensitive to changes in their environment. Fluctuations in temperature, humidity and the CO_2 content of the indoor air can severely affect the quality of the plants. With such a large quantity of flowers being grown in one room, the health of the plants always has to be top priority.

In addition to optimal humidity and a CO_2 content in the air that promotes growth, it is therefore essential to reliably prevent the ingress of pests and mould spores. In return, volatile organic compounds (VOCs) or ethylene must be removed from the indoor air.

At the same time, each operator focuses on high efficiency requirements for the ventilation technology.

Tailored growth conditions for best results

In the field of agriculture, WOLF distinguishes between three systems – because different requirements require individual solutions. All three have in common that they are precisely and individually designed for your specific project and its size, and controlled with high precision.

Regardless of the season and based solely on the needs of the respective crop, the parameters temperature, humidity and air quality are adjusted by sensors and closely monitored (also remotely).

The choice of filters is also based on the individual requirements of the planted crop. It stands to reason that different specifications apply to the cultivation of medicinal plants than, for example, to the targeted breeding of insects. Accordingly, pests, fungal spores and pollutants can be filtered out of the supply air, thereby drastically reducing the use of fungicides or pesticides.

At WOLF, we evaluate every situation to find the most effective solution. We are pleased to outline three possible approaches for you.

/01

Free Ventilation combined with separate active cooling. In this approach, air dehumidification is achieved by condensing greenhouse air through active cooling and the usage of fresh outside air. The option to incorporate outside air offers potential savings on the necessary cooling capacity.

Energy optimisation
Usage of fresh outside air for free cooling capacity

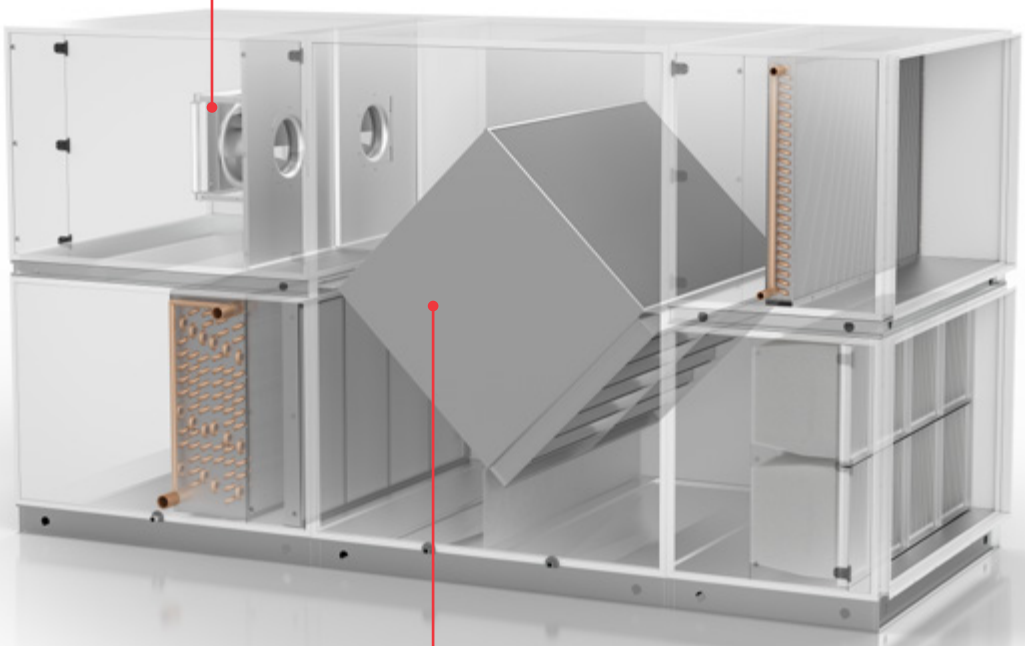
Maximum efficiency
Fan with EC-technology

Small floor surface
Vertical unit saves space

/02

Passive dehumidification within a plate heat exchanger (reduces active cooling). With this option, a dehumidification solution is implemented. Greenhouse air undergoes dehumidification via a plate heat exchanger and cooling coil, followed by reheating to the optimal temperature and humidity.
The strategic use of the plate exchanger results in reduced requirements for active cooling capacity, leading to energy cost savings.

Maximum efficiency
Fan with EC-technology

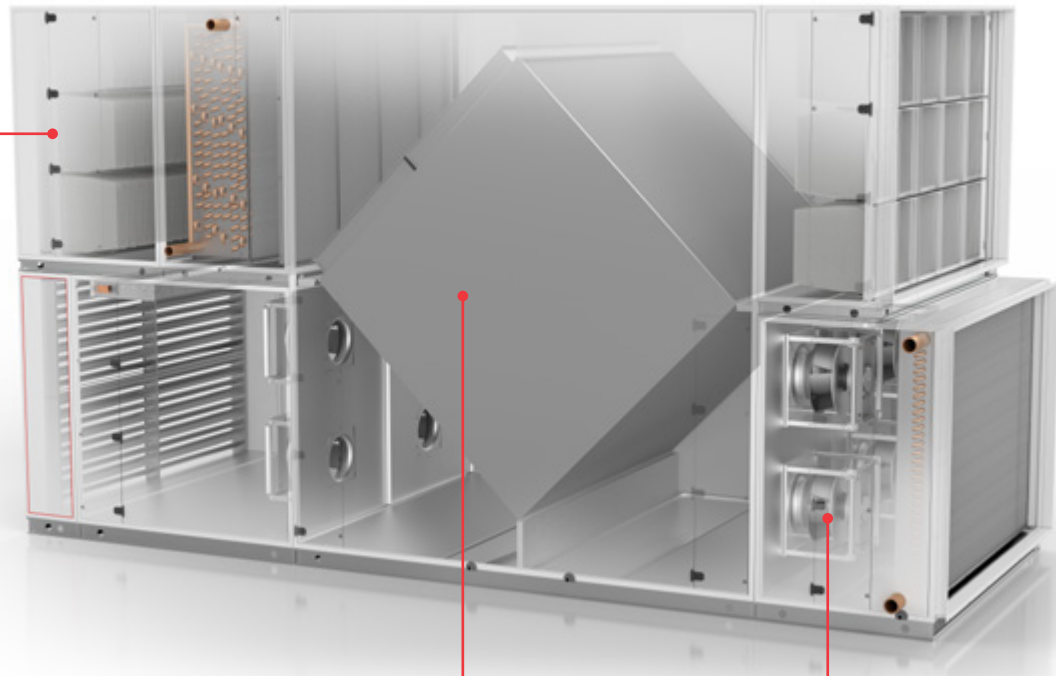


Energy cost savings
Heat recovery to reduce required cooling capacity

/03

Passive dehumidification combined with a cooling coil and highly efficient heat recovery. In this solution, greenhouse air is dehumidified using a combination of a plate exchanger and cooling coil, followed by reheating to the desired temperature and humidity levels. Additionally, the integration of outside air, if necessary or preferred, further optimizes energy efficiency by conserving active cooling capacity during the dehumidification process.

Energy optimisation
Usage of fresh outside air for free cooling capacity



Energy cost savings
Heat recovery to reduce required cooling capacity

Maximum efficiency
Fan with EC-technology

Maximise your yield - minimise your energy input

Optimised mechanical ventilation combines the high requirements for energy efficiency, excellent and consistent product quality, and sustainable and highly automated agriculture. Thanks to precise temperature control and optimal humidity, even sensitive crops grow healthily, rapidly and to a high standard in the hygienically filtered supply air. Your yield per area increases thanks to higher growth rates, as does the quality of your harvest.

You also have full control over air quality and energy consumption. At the same time, you minimise the use of pesticides and fungicides. In this way, you improve your business results immediately and sustainably. For a lower carbon footprint, your ventilation unit can be made from 75% Green Steel, with intelligent controls, efficient components, and highly effective heat recovery ensuring low CO_2 emissions during operation.

Standard units are often finished in grey or white - but that doesn't mean yours has to be. We can supply the outer casing of your unit in any RAL colour of your choice, whether to match your company branding or blend in with the surrounding architecture.

WOLF is one of the leading international suppliers of innovative solutions for indoor climate control. Here's what matters most to our customers:

German Know-how

We develop and manufacture ur products with the highest precision and vertical integration. WOLF Campus training programme in Germany offers you in-depth expert knowledge on professional installation, maintenance, etc. with seminars and in-house training courses.

Partnership at eye level

A nationwide and international network of personal contacts at our locations ensures fast and uncomplicated support. The WOLF Service Team provides you with expert advice and support during commissioning and maintenance.

Simply powerful solutions

WOLF Air Handling systems combine efficiency, durability and ease of operation.
The wide-ranging air handling product portfolio is complemented by digital services that save time, money and CO_2.

For an intact environment and diversity

We consciously prioritise durability and sustainability in our design and choice of materials. At WOLF, different generations and nations work hand in hand and benefit from each other.

WOLF Air handling

A suitable solution for every demand

- Commercial kitchens
- Pools and spa
- Production and industrial buildings
- Healthcare
- Data Centers
- Experience, culture and sports buildings
- Office and administration buildings
- Logistics and warehouses
- Retail stores
- Transportation and traffic
- Educational institutions
- Hotel and accommodation

Get in touch for more details

Please find your local contact on:
www.wolf.eu/wolf-worldwide

Contact us!

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