

Movement by Perfection



The Royal League in ventilation, control and drive technology



Greenhouse fans

Eco-friendly, economical, perfect for your needs

Optimal ventilation in the greenhouse

The air in the greenhouse

The plants growth depends on a whole series of factors. In the protected ecosystem of controlled-environment agriculture (CEA), the optimum environment aimed can be created and precisely regulated by controlling the temperature, relative humidity and other key parameters, such as the O_2 - CO_2 balance.

Forced ventilation systems that guarantee the ventilation exchange and the homogenisation of the interior air independently of the exterior conditions are a must in indoor professional cultivation systems.

Good air distribution is essential to minimise CO_2 , temperature and relative humidity gradients in enclosed cultivating facilities. The fans are crucial to meet the environmental conditions required. They must be designed to be efficient, reliable, robust, durable. ZIEHL-ABEGG systems have been used in greenhouses around the world for decades. This experience has been incorporated into the new generation of fans.

Correct ventilation ensures

- Improved growing conditions for crops and flowers
- Even distribution of heat, air humidity and CO_2
- Best prevention against pests and diseases
- Proper access to available CO_2 and promotion of its fertilisation, when it exists
- Proper airflow around and in between the plants at every development stage

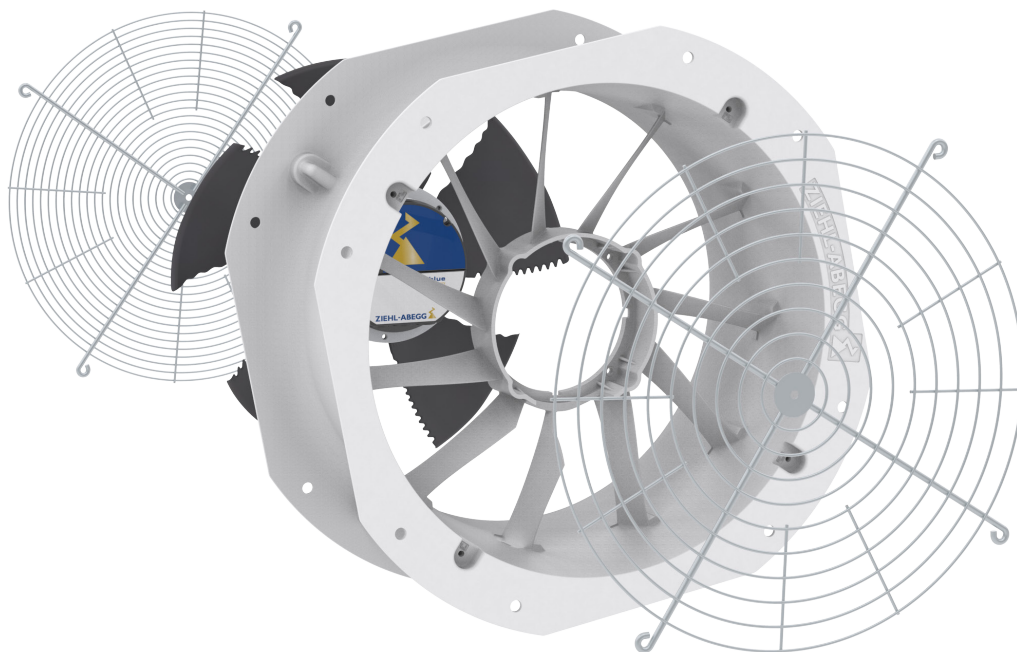
Our greenhouse fans are

- Reliable, efficient, long-lasting and very quiet
- Easy to assembly and usable both horizontally and vertically



The highly efficient system fan for greenhouses and vertical farming

The new bionic FE3owlet fan with ZAPLUS with cross-grille now form an integrated system optimally designed for the highest performance in protected growing environments.



Fan frame size:	450 mm
Supply voltage:	1~ 230V 50Hz, optional 60Hz; 3~ 230V/400V 50H/60Hz; 1~ 200-277 50/60Hz
Volume flow rate:	up to 7.736 m³/h, higher on request
Control:	100% speed controllable
Motor technology:	choice of efficient ECblue or successful AC technology
Ambient temperature:	up to 70°C possible
System components:	Finger protection when needed, air throw cross grille, control engineering
Control engineering:	Frequency inverters, control modules, voltage controllers, motor contactors, main switches, sensors
Corrosion protection:	High corrosion protection thanks to high-performance composite nozzle and blades, stainless steel screws and nuts, and powder-coated steel parts.

Efficiency based on the principle of nature

The new FE3owlet fan with ZAplus has been optimized in terms of performance and efficiency

Low operating costs

The overall system of greenhouse fans has been further optimized resulting in above-average efficiency and low operating costs. The system components are convincing down to the last detail:

- The bionic FE3owlet blade modelled on the wings of an owl.
- The ZAplus high-performance composite nozzle equipped with a short diffusor and guide vanes.
- The cross-grille especially designed for an enhanced air throw.

Setting new standards for efficiency.

The ECblue high-efficiency motor is available to reduce operating costs even further, providing activation via 0-10V, 4-20mA or MODBUS.

Sustainability

The intelligent packaging system uses significantly less packaging material. This keeps our ecological footprint as low as possible, meaning faster unpacking and less associated waste.

Reduction in internal logistical costs

This ingenious packaging system helps to reduce internal logistical costs. It accelerates the unpacking of fans and significantly reduces the amount of packaging material.

Assembly time is also reduced by the provision of several mounting points available on both sides of the flange, which gives adaptability and a high level of flexibility. Because of the use of high performance composites, the new generation of ZIEHL-ABEGG greenhouse fans is considerably lighter than comparable systems made of metal. Thanks to the reduced weight of the system, the add-on weight on the greenhouse structure is lightweight.

The design allows easy balanced mounting.

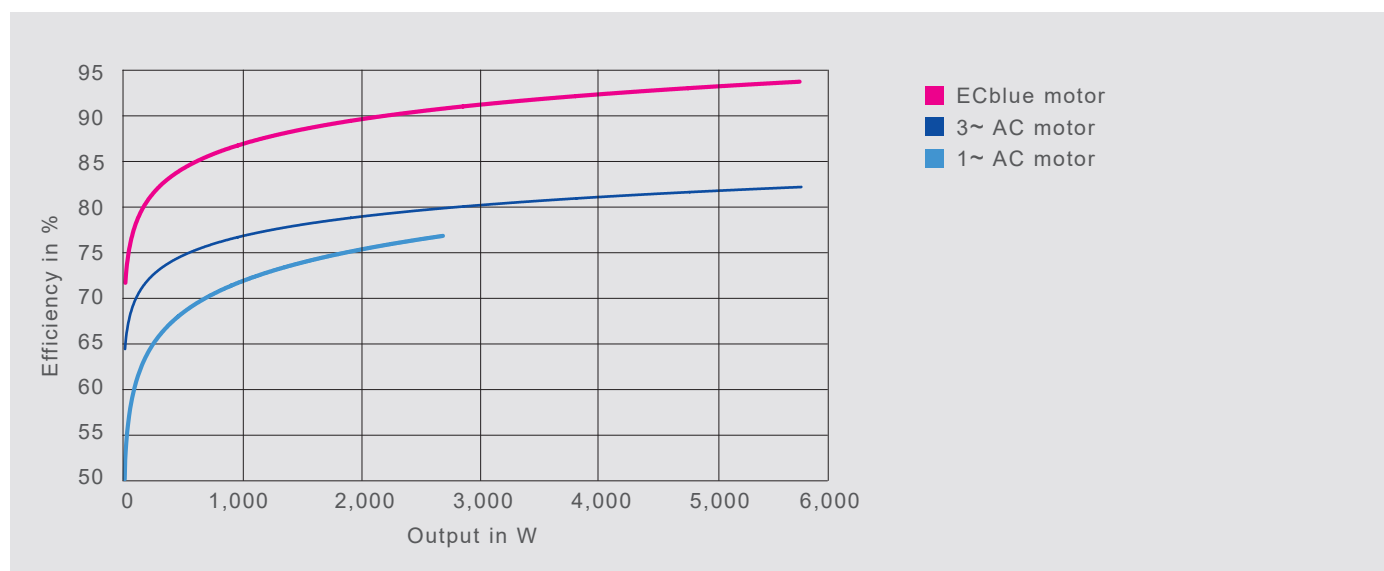
High durability

High corrosion protection is one of the factors contributing to the system's special durability. The ZAplus nozzle and FE3owlet blade are made of high performance composite material, while all the other metal parts are coated in accordance with greenhouse requirements. Extensive laboratory and field tests confirm suitability for greenhouse and vertical farming use.

Future-proof efficiency

FE3owlet fans with ZAplus already meet now the minimum efficiency requirements taking effect in the upcoming years.

This makes a product change unnecessary in the medium-term.



Reduction in operating costs with a high motor efficiency level



Cost-effective and sustainable

Best climate with blue technology

The combination of FE3owlet with ZAplus, both with the successful AC and highly efficient ECblue motor technologies, generates cost and environmental benefits.

The highly efficient system reduces energy consumption drastically, with the consequent impact on costs and CO₂ emissions.

The intelligent packaging system uses significantly less packaging material, resulting in faster unpacking and better life cycle assessment.



Eco-friendly dispatch



Connectivity, Controllability, Flexibility

ZAbluegalaxy

All the above products can be linked to the Cloud via BUS communication. This creates the possibility of integrating the controls and all components into the big data structure of your cutting-edge next-generation greenhouse technology. Moreover, the possibility now opens up via ZAbluegalaxy (cloud-based data room from ZIEHL-ABEGG) of making predictive diagnoses and having a 360° overview.

So you always have remote access to the components and timely alert notifications that prevent late intervention in case of any deviations in the growth process. This way, you are always aware of the status of the system.

Even smarter with control technology

In addition to fans, ZIEHL-ABEGG develops its own customised products for fan speed control. We produce controller, including voltage controllers, frequency controllers, ventilation computers (e.g. the CXG) and EC controllers integrated into motors.

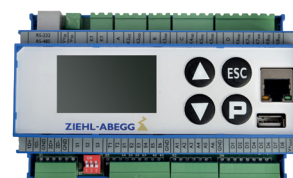
So you have a total integrated solution for your greenhouse, where it comes down to precise controls. The system works together in perfect harmony. This results in high reliability, great durability, easy operation and an energy-efficient system.



Fcontrol
Frequency controller



UNIcon
Intelligent control module



CXG
Ventilation computer

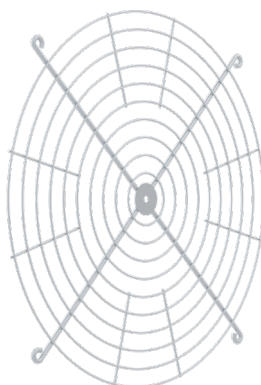
Mix and match

We offer a total solution for your greenhouse, allowing you to create a tailor-made package. You can choose from various accessories such as suspension brackets, grids, different types of cables and much more. This way, you are ready in one go to completely customise the climate control of your greenhouse.

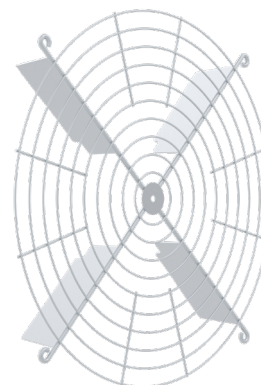
We will gladly advise you to put together the best package for you. In doing so, we look at your wishes and needs to make sure we have a suitable solution for you, because every crop has its own way of developing.



Hanging brackets



Grille protection against accidental contact



Cross-grille protection

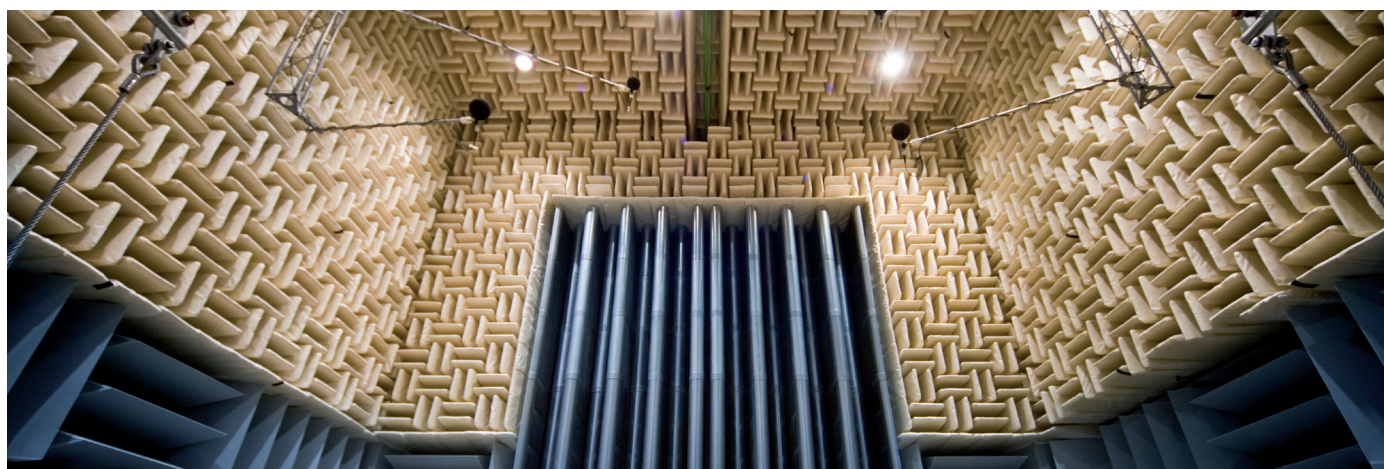
Optimum performance

Air throw as a parameter

In contrast to the aero-acoustic measurement, when it comes to air throw specification it is much more difficult to make comparisons, as there are no standards for it.

ZIEHL-ABEGG has opted for a scientific and yet practical measuring procedure that specifies realistic values making an impact on air distribution.

The throw distance is consistently measured in our InVent Lab and contrasted in real conditions via fog tests, double-checking air speed and throw. Reliable values are provided so professional dedicated calculations are feasible for both air homogenisation and direct ventilation over the crops.



Product overview

Type	Motor	Supply voltage	Poles	Cross and finger grilles	Maximum airflow @ 0 Pa [m³/h]	Power consumption @ 0 Pa [W]	Current @ 0 Pa [A]	Sound power @ 0 Pa LwA5 [dB(A)]	Control
ZN045-4EL.2F.V7P2	AC	1~ 230V 50Hz	4	Optional	6.042	299	1.37	73.9	T/T/F**
ZG045-4EL.2F.V5P2	AC UL	1~ 230V 50Hz	4	Optional	5.349	239	1.17	72.0	T/T/F**
		1~ 230V 60Hz			6.133	343	1.49	76.0	T/T/F**
ZN045-6EL.2F.V7P3	AC UL	1~ 230V 50Hz	6	Optional	4.536	156	0.70	63.6	T/T/F**
		1~ 230V 60Hz			5.188	207	0.92	66.0	T/T/F**
ZN045-4DL.2F.V7P2	AC UL	3~ 230/400V 50Hz	4	Optional	6.060	259	0.90/0.55	72.8	T/T/F**
		3~ 230/400V 60Hz			6.664	373	0.60/0.62	75.1	T/T/F**
		3~ 265/460V 60Hz			7.025	408	0.63/0.63	76.4	T/T/F**
ZG045-VDL.2F.V5P2	AC UL	3~ 230/400V 50Hz	4	Optional	5.326	194	0.40/0.52	72.0	T/T/F**
		3~ 230/400V 60Hz			6.055	274	0.52/0.52	75.4	T/T/F**
		3~ 265/460V 60Hz			6.215	296	0.52/0.54	75.8	T/T/F**
ZG045-ZIL.0F.V5P1	EC UL	1~ 200-240V 50/60Hz	10	Optional	5.766	168	1.59	70.0	0-10V or MODBUS
ZN045-6IL.BD.V7P3	EC (UL*)	1~ 200-277V 50/60Hz	6	Optional	5.331	144	0.64	67.5	0-10V + MODBUS + PFC
ZN045-ZIL.BD.V7P3	EC UL	1~ 200-277V 50/60Hz	10	Optional	6.282	243	1.07	71.4	0-10V + MODBUS + PFC
ZN045-6IL.BD.V7P2	EC (UL*)	1~ 200-277V 50/60Hz	6	Optional	6.551	274	1.21	75.5	0-10V + MODBUS + PFC
	EC (UL*)	1~ 200-277V 50/60Hz	6	Optional	7.736	476	2.11	80.9	0-10V + MODBUS + PFC

* UL motor optional not standard.

** Transformer/Electronic voltage controller (triac)/Frequency inverter only with all-pole sine filter.

There are also further versions (modifications) or sizes. Just talk to us, and together we will find the right solution.

The Royal League

