

Movement by Perfection



The Royal League in ventilation, control and drive technology



# Greenhouse fans

Eco-friendly, economical and in line with your needs

# Optimal ventilation in the greenhouse

## The air in the greenhouse

The growth of plants depends on a whole series of factors. In a controlled environment, which a greenhouse provides, the optimum climate required can be created and precisely regulated by controlling the temperature, irrigation and other parameters.

Correct ventilation also plays a key role. The air available in the greenhouse must be circulated, exchanged and evenly distributed. Systems from ZIEHL-ABEGG offer just the right solution.

## Correct ventilation ensures

- Even distribution of heat and air humidity
- Prevention of fungal and pest infestation
- Promotion of fertilisation
- Simulation of the air movement as in the natural habitat

Ambient conditions in the greenhouse require fans matched accordingly. They must be designed to be robust and durable. They must be designed for continuous service in high and very high air humidity and their performance must also not be affected by organic or chemical particles in the air.

Fans from ZIEHL-ABEGG have been used in greenhouses for decades. This experience has been incorporated into the new generation of fans that operate in both an eco-friendly and efficient manner. True to the spirit of nature.



## The highly efficient system fan for the greenhouse

The new bionic FE2owlet fan with ZPlus now provides a system, which is optimally designed for use in the greenhouse.



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 6,500 m <sup>3</sup> /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:	Screen protection against accidental contact, air throw cross, control engineering
Control engineering:	Frequency inverters, air-con control modules, voltage controllers, motor contactors, main switches, sensors
Corrosion protection:	High corrosion protection thanks to high-performance composite nozzle and high-performance composite blade, steel parts, coated

### Advantages:

- Inexpensive (low operating costs, durability, easy assembly)
- Economical friendly (low energy consumption, eco-friendly packaging solution)
- In line with your needs (optional accessories)

# Efficiency based on the principle of nature

## The new FE2owlet fan with ZPlus 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 right down to the last detail:

- The bionic FE2owlet blade modelled on the wings of an owl.
- The ZPlus high-performance composite nozzle equipped with a short diffusor and guide vanes.

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.

### Reduction in internal logistical costs

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

### Minimum assembly time

Assembly time is also reduced by making numerous mounting points available on both sides of the flange, thus ensuring a high level of flexibility. Thanks to the use of high performance composites, the new generation of ZIEHL-ABEGG greenhouse fans is considerably lighter than comparable systems made of metal. The design with the center of gravity in the middle allows an easy balanced mounting.

### High durability

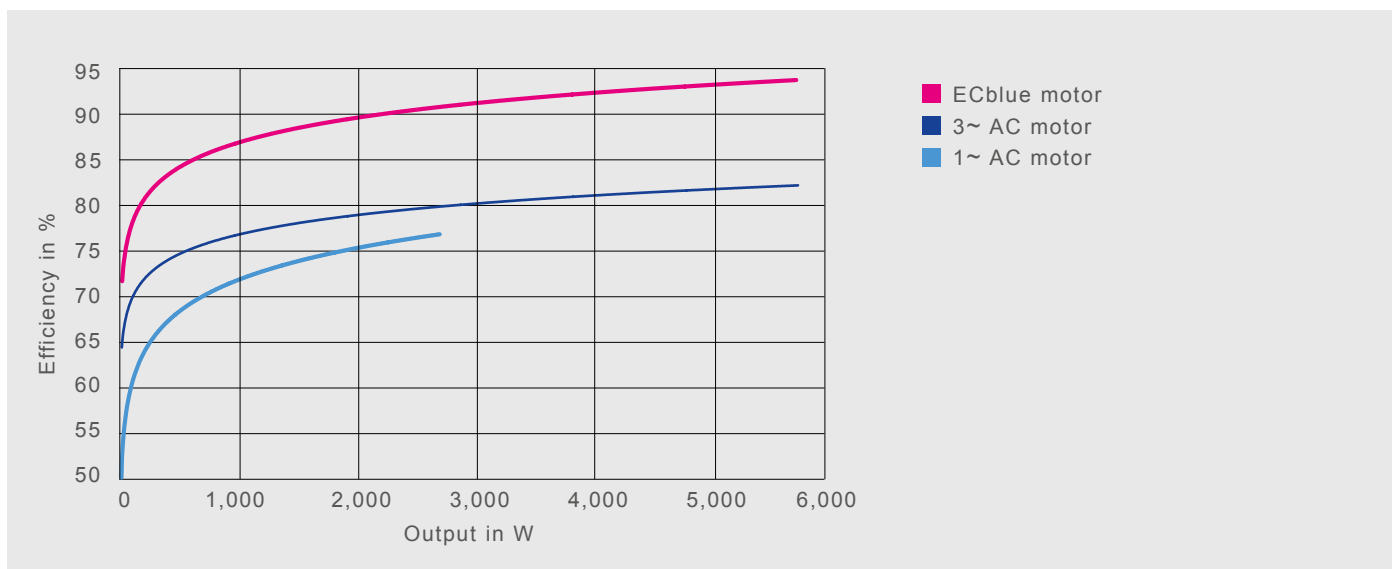
High corrosion protection is one of the factors contributing to the system's special durability. The ZPlus nozzle and FE2owlet blade are made of high performance composite material, while all the other metal parts are coated in accordance with greenhouse requirements. Extensive laboratory and field tests confirm suitability for greenhouse use.

### Future-proof efficiency

FE2owlet fans with ZPlus now already meet the minimum efficiency requirement, which will take effect in 2020. This makes a product change unnecessary in the medium-term.

### Reduced assembly costs

The costs of mountings and assembly can also be reduced courtesy of lower fan weight.



Reduction in operating costs with a high motor efficiency level





# Economical friendly and sustainable

## Having green fingers will save costs

The combination of FE2owlet with ZAprus, as well as with the successful AC and highly efficient ECblue motor technology, generates cost and environmental efficiency.

The highly efficient system fan serves to drastically reduce energy consumption. With a positive effect for CO2 emissions and energy costs.

The intelligent packaging system uses significantly less packaging material, which in addition to resulting in faster unpacking also pays off in terms of the life cycle assessment.



*Eco-friendly dispatch*



# System concept

## Optimized and matched from one source

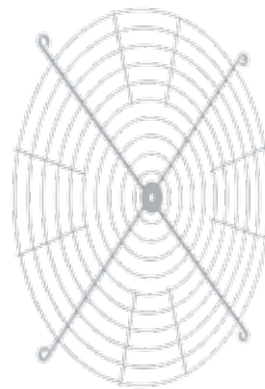
ZIEHL-ABEGG is the only fan manufacturer that develops processes for changing fan speed producing the corresponding controllers itself, which include voltage controllers, frequency inverters and EC controllers.

Fan-related system solutions come from one source. The components are developed, designed and selected so that the overall system is in perfect harmony.

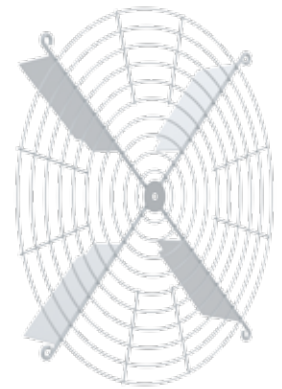
Durability, reliability, simple operation and energy efficiency contribute to the optimum interaction. Resulting in individual solutions which offer crucial benefits in a special application. The criteria associated with the relevant system are taken into account, thus producing the best result.



ZAPLUS



Screen protection against accidental contact



Screen protection against accidental contact with air throw cross



UNIcon  
Intelligent control modul



Fcontrol  
Frequency inverter



ZSG-5  
Potentiometer

## Advantages:

- Highest total efficiency thanks to the optimum interaction between controllers, sensors and fans
- Reduced installation effort thanks to the cables designed
- Status display of the ECblue fan with the help of the LED status lamp
- Simple operation of air-con control modules



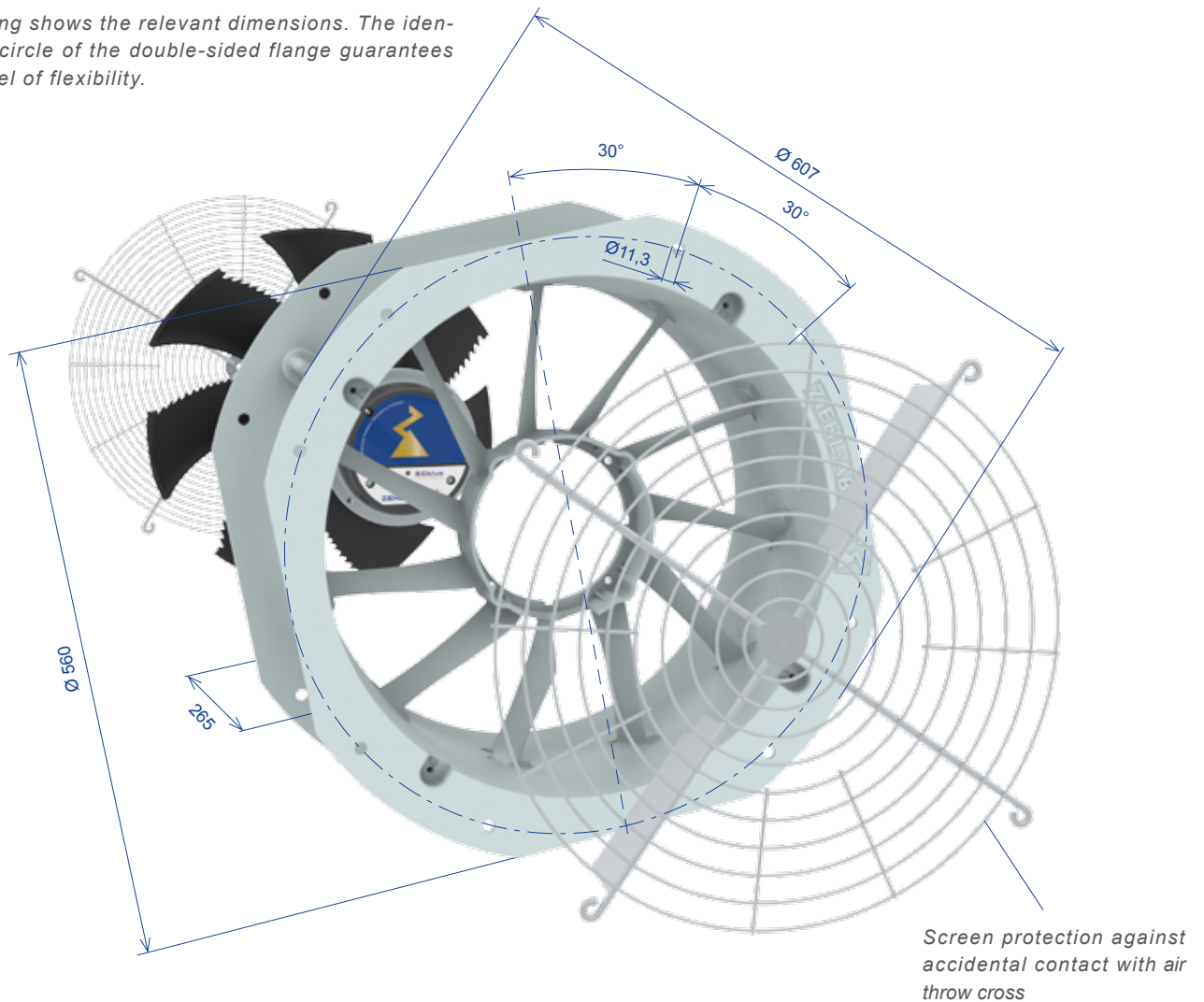
# Maximum air movement

## Throw distance as a parameter

In contrast to the aero-acoustic measurement, when it comes to the throw distance specification it is much more difficult to make comparisons, as there are no standards for it. ZIEHL-ABEGG has opted for a practical measuring procedure that specifies values that are as realistic as possible, instead of values which cannot be complied with in practice.

The throw distance is established by means of smoke in a greenhouse. The artificially produced fog is sucked through the fan and the throw distance is measured after a defined period of time where the air movement is still visible.

The drawing shows the relevant dimensions. The identical hole circle of the double-sided flange guarantees a high level of flexibility.



## Product overview

Article number	Type	Motor	Supply voltage	Pole count	Screen protection against accidental contact	Maximum volume flow rate in the case of 0 Pa in m <sup>3</sup> /h	Power consumption in the case of 0 Pa in W	Acoustic power in the case of 0 Pa in dB(A)	Throw distance
173000	ZN045-4EL.2F.V7P2	AC	1~ 230V/50Hz	4	double-sided	6,042	299	73.9	40
173003	ZN045-6EL.2F.V7P3	AC	1~ 230V 50/60Hz	6	double-sided	4,536	156	63.6	34
173006	ZN045-4DL.2F.V7P2	AC	3~230V/400V/465V 50Hz/60Hz	4	double-sided	6,060	258	73.2	40
173008	ZN045-6DL.2C.V7P3	AC	3~230V/400V/465V 50Hz/60Hz	6	double-sided	4,431	139	62.5	34
174304	ZN045-6IL.BD.V7P3	EC	1~ 200-277V 50/60Hz	6	double-sided	5,331	144	67.7	40
176422	ZN045-6IL.BD.V7P2	EC	1~200-277V 50/60Hz	6	double-sided	6,551	274	75.5	45

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



# The Royal League

