



# MANUAL

## Enfan

### Horizontal circulation



Version: 2026-01

## PREFACE

This user manual is intended for users of these fans and technicians who install and maintain them. The manual and operating instructions are bundled together in a single document.

Each chapter is numbered and, where necessary, divided into sections. The table of contents on page 3 contains an overview of the chapters and paragraphs, with references to page numbers.

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## 1 IDENTIFICATION

This overview contains general information about the device. The purpose of this part is to indicate the limits and overall operation of the device, and the areas it is used in.

### 1.1 General

#### 1.1.1 Description of the device

The Enfan consists of a fan mounted vertically on a lattice shelf using mounting brackets and mounting brackets. Various accessories are optionally available, such as an inflow/outflow grid and power cord with plug. The power cord depends on the type of fan. It is also possible to order an outflow guide flap so that air is expelled in a certain direction. The working principle of the outflow guide is described in chapter 4.4

There are no direct controls on the Enfan itself. The Enfan will work on an external signal.

#### 1.1.2 Specifications

Type	ZN045 AC ZAplus 50 Hz	ZN045 AC ZAplus 50 Hz	ZG045 EC 50 Hz / 60 Hz	ZG045 EC 50 Hz / 60 Hz	ZN045 AC* 50 Hz / 60 Hz
Power (kW)	0.38	0.38	0.42	0.17	0.24
Voltage (V)	230	400	200-277 ~1	200-240 ~1	230
Current (A)	1.7	0.64	1.5-2.1	1.5-1.8	0.8-1.05
Speed (rpm)	1250	1250	1470	1230	870
Capacity (m <sup>3</sup> /h)	6020	6166	6250	5521	5222
Thermal contact	Yes	Yes	No	Yes	Yes
Power cable	Optional	Optional	Optional	Optional	Optional
Signal cable fan	-	-	Optional	Optional	-
Total weight (kg)	8.2	8.2	7.7	7.6	8.7
Certification	CE, EAC, UKCA	CE, EAC, UKCA	CE, EAC, cURus, UKCA	CE, EAC, cURus, UKCA	EAC, cURus
Product code	72003432	72003442	72003530	72003491	72003461

Table 1 Fan specifications

\*Without grids

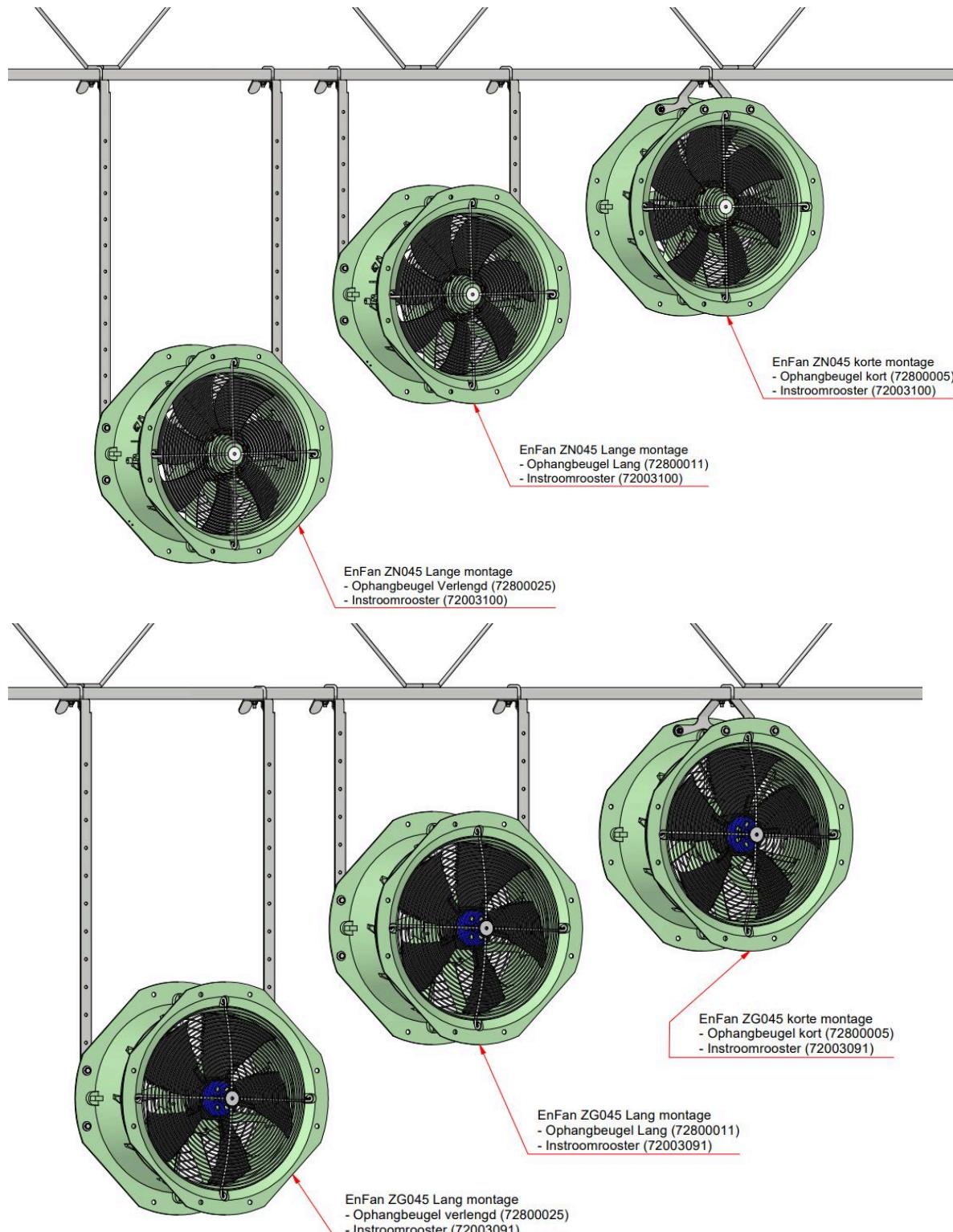
The table above describes the standard fans. Other versions, UL/CSA approved, 50 Hz and EC DC with built-in speed control are available on request.



Figure 1: Left to right; ZN045 AC / ZG045 EC

### 1.1.3 Diagram of the system

In the picture below there is a schematic view of the most important components of the system with the two types of fans.



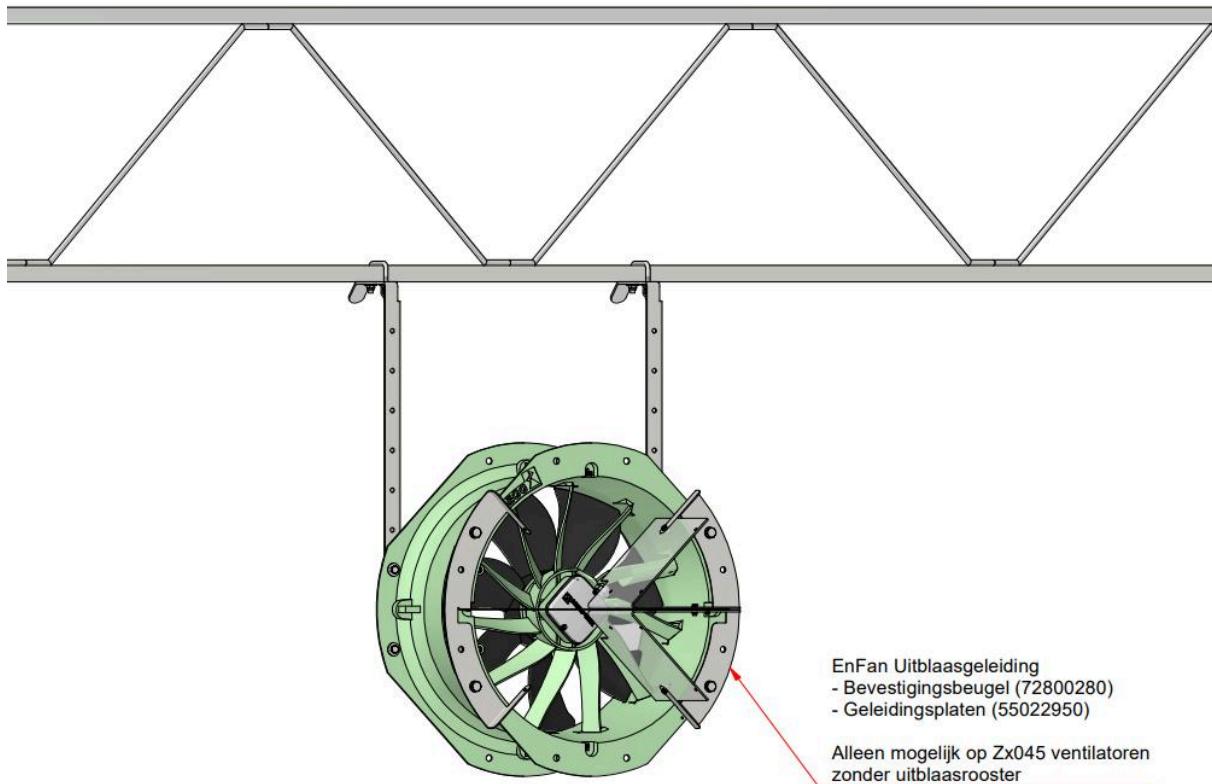


Figure 1 Diagram of the Enfan

The long and short mounting brackets can be used on either the ZN045 as the ZG045 fan. There are more detailed instructions for installation in chapter 4.

## 1.2 Users

During normal operation, the Enfan is not used directly, it is only controlled by an operator/user via a (central) switch box. Intended users who are allowed to work with the Enfan are persons of at least 18 years old who are employed by the company where the Enfan is installed. This person has been designated by the company management as competent and authorized to manage the Enfan.

Unintended users are users who do not fit the above description. Unintended users are all users who, by using the Enfan, create unsafe situations or endanger themselves or others.

## 1.3 Use

The Enfan is intended for creating horizontal air recirculation in greenhouses to improve the climate distribution in a greenhouse. This only concerns the movement of air in an environment where the temperature is not below -10°C and not above +50°C.

The Enfan is not intended to use in an environment which differs from the description above.

## 1.4 Authorized servicers

Maintenance on the Enfan may be carried out by any maintenance company. The preference for carrying out maintenance work goes to VDEG, because everything about the Enfan is known here.

By carrying out periodic maintenance, unnecessary costs or malfunctions can be avoided and higher operational reliability can be achieved.

## 1.5 Operating environment

The Enfan must be mounted on the bottom beam of the trellis truss in the greenhouse using the mounting brackets supplied by VDEG. The lattice truss to which the Enfan is mounted must be in good condition to be able to support the fan and accessories.

It should not be possible for people to reach the fan without any tools.

The Enfan is not designed for use in any other environment than that described above, except for customer-specific requests under the guidance of Van der Ende. The Enfan is not suitable for use in explosive environments.

## 1.6 Guarantee conditions

The unit is guaranteed for 6 months after first use.

If a claim is made under guarantee, the parts concerned must be presented to the manufacturer for assessment.

The guarantee is void in the event of any of the following;

- Improper use
- Ignoring the manufacturer's or supplier's advice
- Unauthorized repair, maintenance or use
- Use of inappropriate power supply connections
- Use of the machine in an unsuitable environment
- Intentional damage or modification of the machine

## 1.7 Relevant directives

The Enfan complies with the provisions in the following directives which can be found in attachments.

The Enfan is classified as a Class I device according to the Low Voltage Directive.



## 2 DESCRIPTION

### 2.1 General

The purpose and function of the Enfan is to create a horizontal air movement in greenhouses. External influences create a natural draft in the greenhouse, which causes a temperature difference. In addition, a difference in humidity can also arise in the greenhouse due to this natural draft. By setting the air in the greenhouse in motion with the Enfan fans, a more equal distribution of temperature and humidity is created, which minimizes the differences over the greenhouse. The air flow has a positive effect on growth, ripening and the crop's susceptibility to fungal diseases.

The Enfan can be used where all kinds of vegetable, fruit and ornamental plants are cultivated.

### 2.2 Delivery

As standard, the Enfan is supplied without mounting brackets or other accessories. The various parts are supplied in separate packs, and can be assembled on site.

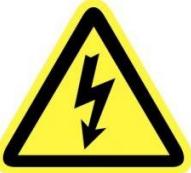
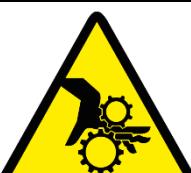
### 3 SAFETY INSTRUCTIONS

When working on the Enfan, always make sure the plug is disconnected from the power supply! This prevents the fan starting unexpectedly or unintentionally.

Only use self-locking nuts to mount the Enfan. Failure to do so may result in parts vibrating loose and falling off.

When installing or working on the Enfan, keep all the safety instructions in mind for working on height and take care for a safe work environment.

The regulations below are applicable to the Enfan.

Safety symbol	Description
	Automatic starting machine!
	Electric voltage present!
	Danger of falling!
	Rotating parts!
	Remove power plug before working on the system!
	Reading manual obligated!

## 4 INSTALLATION

This chapter describes the installation of the Enfan. The separate parts must first be assembled into a single unit, ready for suspension.

The Enfan can be attached using either short mounting brackets or long mounting brackets. An overview is attached to help you.

### 4.1 Enfan parts

Quantity	Description	Type
Enfan model ZN045		
1	Ventilator	ZN045 AC/EC
1	Set long mounting brackets	2x long mounting brackets 2x rivet m8 8x self-locking nuts m8 4x bolts m8x20 2x bolts m8x12 14x Washers m8
1	Set short mounting brackets	1x short mounting brackets 1x rivet m8 6x self-locking nuts m8 4x bolts m8x20 10x washers m8
Enfan model ZG045		
1	Ventilator	ZG045 EC
1	Set long mounting brackets	2x long mounting brackets 2x rivet m8 8x self-locking nuts m8 4x bolts m8x20 2x bolts m8x12 14x washers m8
1	Set short mounting brackets	1x short mounting brackets 1x rivet m8 6x self-locking nuts m8 4x bolts m8x20 14x washers m8

Table 2 Enfan parts

There will be delivered one set of mounting brackets at every Enfan model. Table 2 shows all the different possible suspensions at every Enfan model.

Options		
1	Set outflow grid for Enfan ZN045 + ZG045	1x outflow grid for ZN045 + ZG045 4x torx screws
1	Set inflow grid for Enfan ZN045	1x inflow grid for ZN045 4x torx screws
1	Set inflow grid for Enfan ZG045	1x inflow grid for ZG045 4x torx screws
1	Set outflow guide flap, applicable on: <ul style="list-style-type: none"><li>• Enfan model ZN045 short suspension</li><li>• Enfan model ZN045 long suspension</li><li>• Enfan model ZG045 short suspension</li><li>• Enfan model ZG045 long suspension</li></ul> <b>Note!:</b> the air guides can't be applied in combination with an outflow grid	1x mounting bracket Enfan/Airmix 4x bolts m10 x 25 8x washers m10 4x self-locking nuts m10 1x (or 2x) outflow guide flap 3x (or 4x) bolts m5 x 16 6x (or 8x) washers m5 3x (or 4x) self-locking nuts m5
1	Power cable	Desirable length
1	Signal cable	Desirable length

Table 3: Optional products to the Enfan

## 4.2 How to suspend the Enfan using long mounting brackets

### 4.2.1 Mount bracket on lattice shelf

- Attach the two mounting brackets (7) to the lattice shelf (1);
  - Use two M8 rivet (4), four M8 standard washers or fender washers (2) and four M8 self-locking nuts (3);
    - See Figure 2;
  - Make sure that the diagonal lip is on the side of the lattice shelf side to which the screen cloth profile is connected (sliding section).

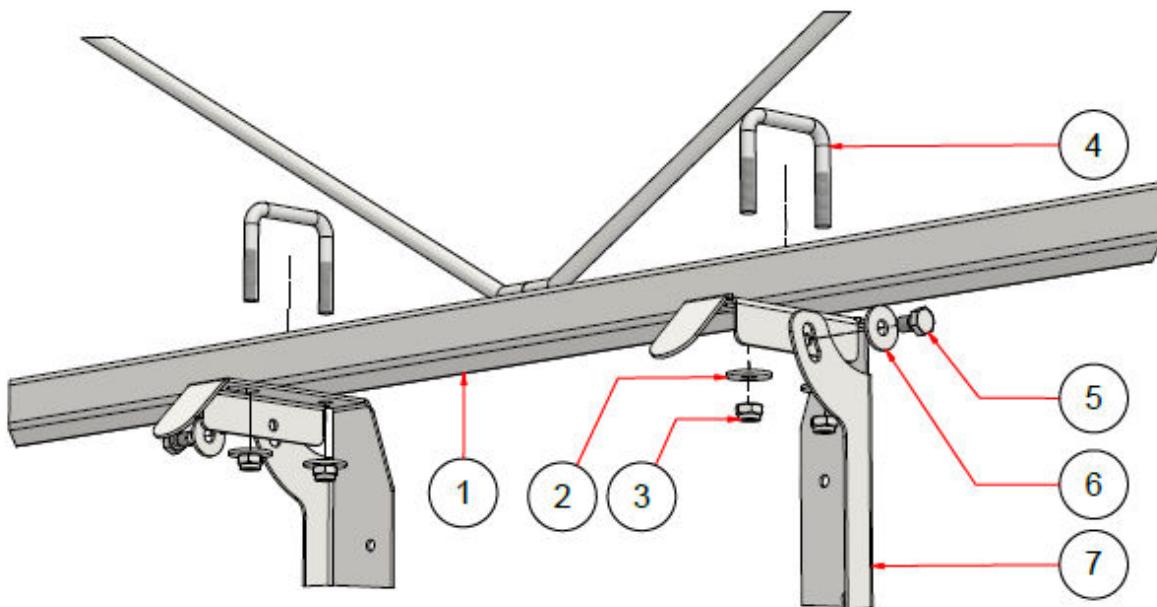


Figure 2 Mounting of bracket on lattice shelf

### 4.2.2 Adjusting the mounting bracket

The numbering in Figure 2 is used for the instructions for adjusting the mounting brackets.

- Adjust the mounting bracket (7), so the fan is vertical;
  - use one M8x12 bolt (5) and one m8 fender washer (6);

#### 4.2.3 Attach fan to bracket

- Attach the fan (5) to the mounting brackets (4);
  - Use four M8 x 20 bolts (1), eight M8 fender washers (2) and four M8 self-locking nuts (5);
    - See Figure 3;
  - When there is an inflow or outflow grid applied at the ZN045 fan, there will be delivered torx screws with it.

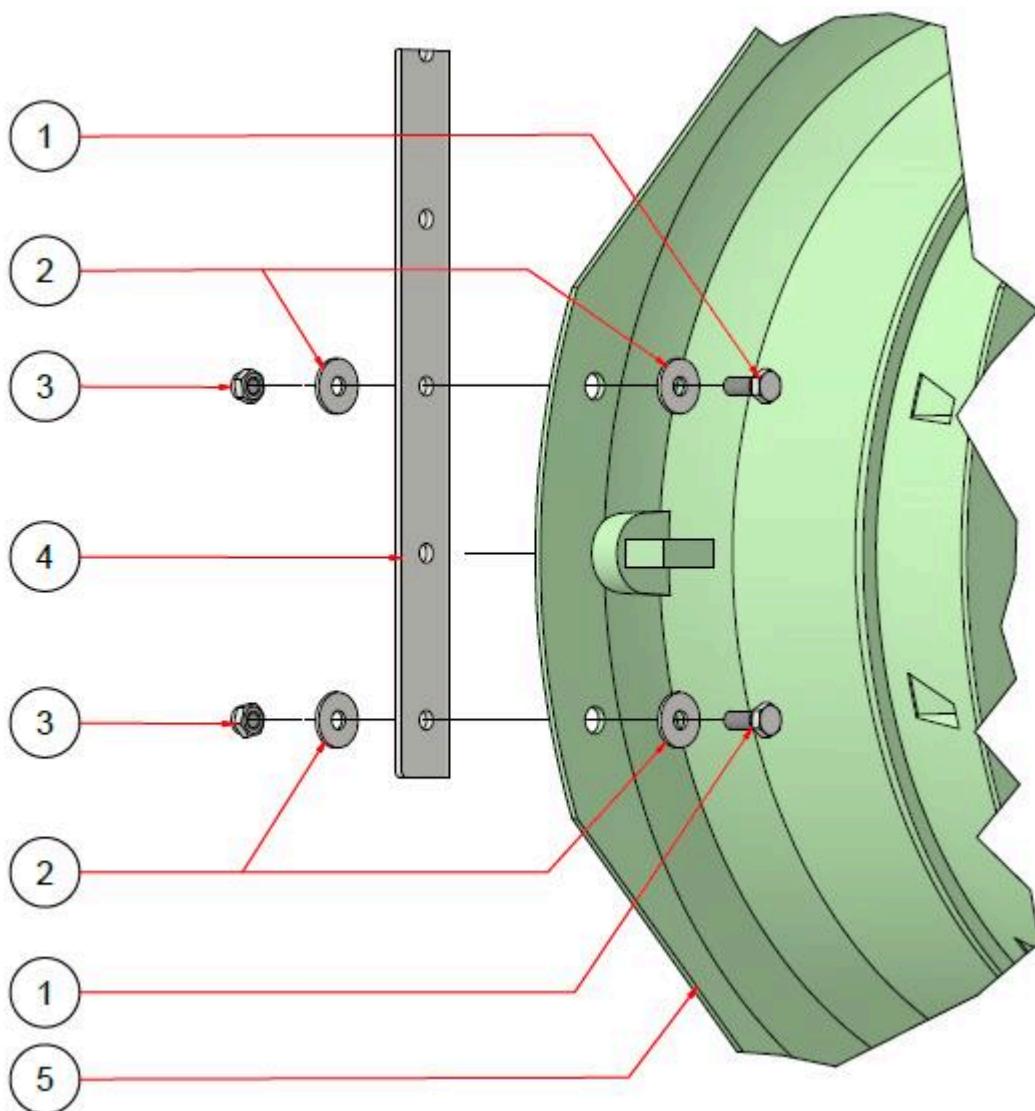


Figure 3 Mounting ZN045 and ZG045 fan

## 4.3 Mounting instructions for the Enfan using short mounting brackets

### 4.3.1 Attachment bracket to the lattice

- Attach the mounting bracket (3) to the lattice (2);
  - Use a rivet M8 (1), two M8 fender washers (4) and two M8 self-locking nuts (5);
    - See Figure 4;

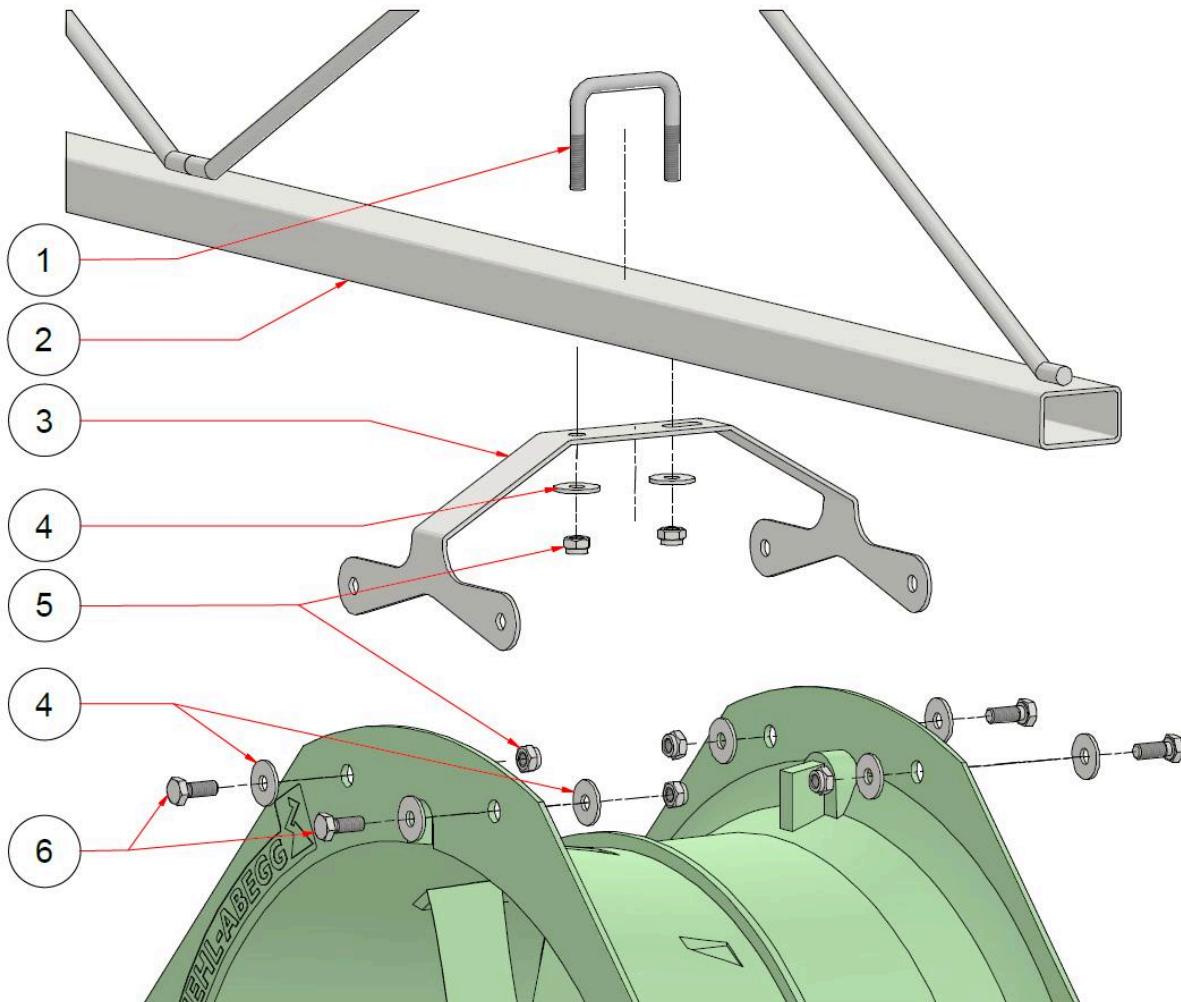


Figure 4 Installation of the bracket to the lattice

### 4.3.2 Installation of the bracket to the fan

The numbering in Figure 4 is used for the instructions for adjusting the mounting brackets.

- Attach the fan to the mounting bracket (3);
  - Use four M8 x 20 bolts (6), eight M8 washers (4) and four M8 self-locking nuts (5);

## 4.4 Air flow guide plates

Air flow guide plates direct the air that is blown from the ventilator. Various configurations are possible to control the air flow. The configurations presented in chapter 4.4.1 are tested by VDEG on their desired effect. However, due to differences in installations, it is recommended to perform a single test prior to implementation, in order to obtain the most desirable effect.

### 4.4.1 Configuration of the air flow guide plates

The number of guide plates attached to the Enfan and their orientation are vital for determining the air flow. The configurations with one guide plate are shown in Figure 5. The left configuration restricts the airflow downwards whilst the right restricts the flow upwards. A downwards restriction might be necessary if the airflow affects the crop too much. An upwards air flow restriction is imposed when the flow affects the screen cloth too much.

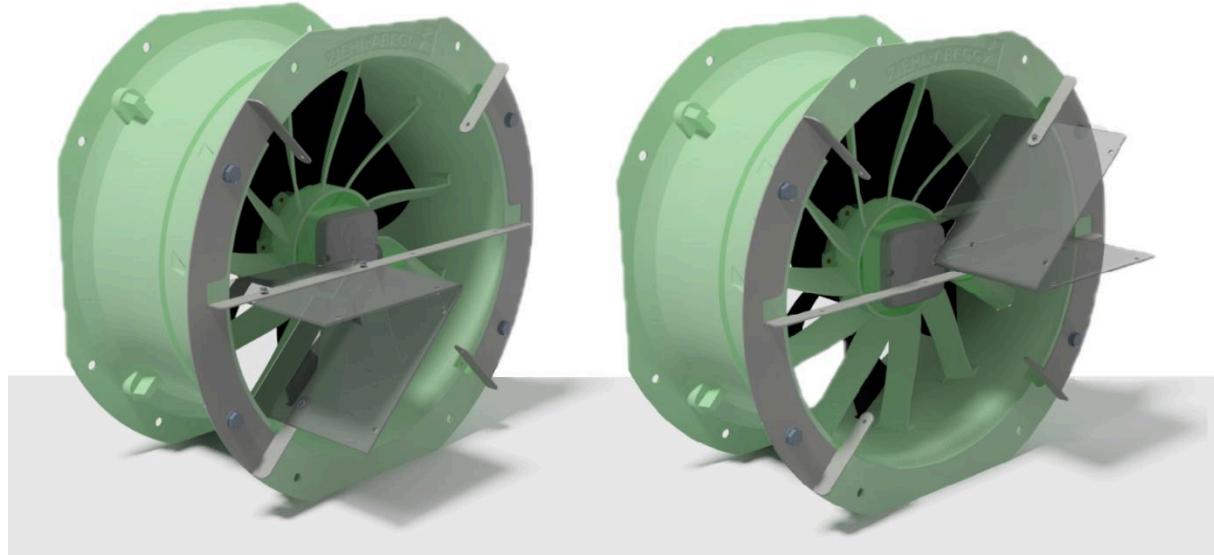


Figure 5 Downward (left) and upward (right) air flow restriction

If the configurations in Figure 5 do not influence the air flow enough, one can choose to use two air flow guide plates to restrict the flow. Figure 6 shows these configurations. The left configuration is used to limit the downward air flow even more. Respectively, the right configuration limits the upward flow even more than the one in Figure 9 does.

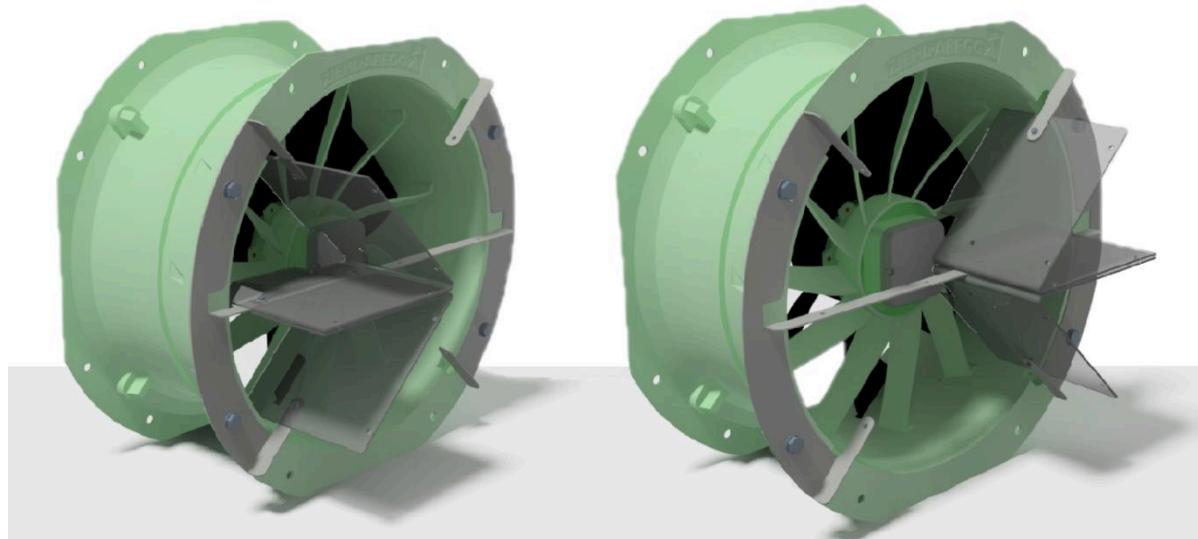


Figure 6 Extra downward (left) and upward (right) air flow restriction

## 4.4.2 Assembling the air flow guide plates

To attach the guide plates to the Enfan, the mounting bracket must first be attached to the fan. One can also choose to attach the guide plates to the mounting bracket before connecting the bracket to the Enfan.

Requirements:

- 1x mounting bracket
- 4x hexagonal tap bolt m10 x 25
- 8 x washer m10
- 4x lock nut m10

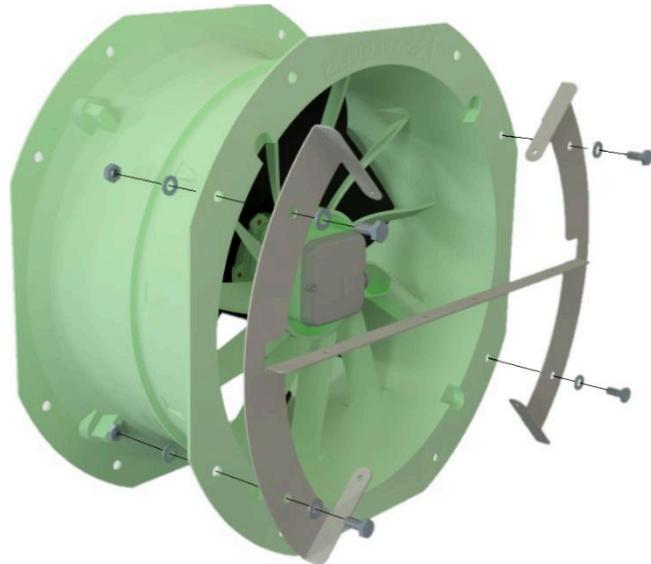


Figure 7: Flow guide plates mounting bracket

The mounting bracket will be connected to the fan according to Figure 7. Depending on the configuration, the bolts passing through horizontal strip of the mounting bracket will fixate either one or two air flow guide plates.

Requirements for mounting one flow guide plate:

- 1x Air flow guide plate
- 3x hexagonal tap bolt m5 x 16
- 6x washer m5
- 3x lock nut m5

When one air flow guide plate is connected to the mounting bracket, Figure 8 shows how it needs to be assembled .

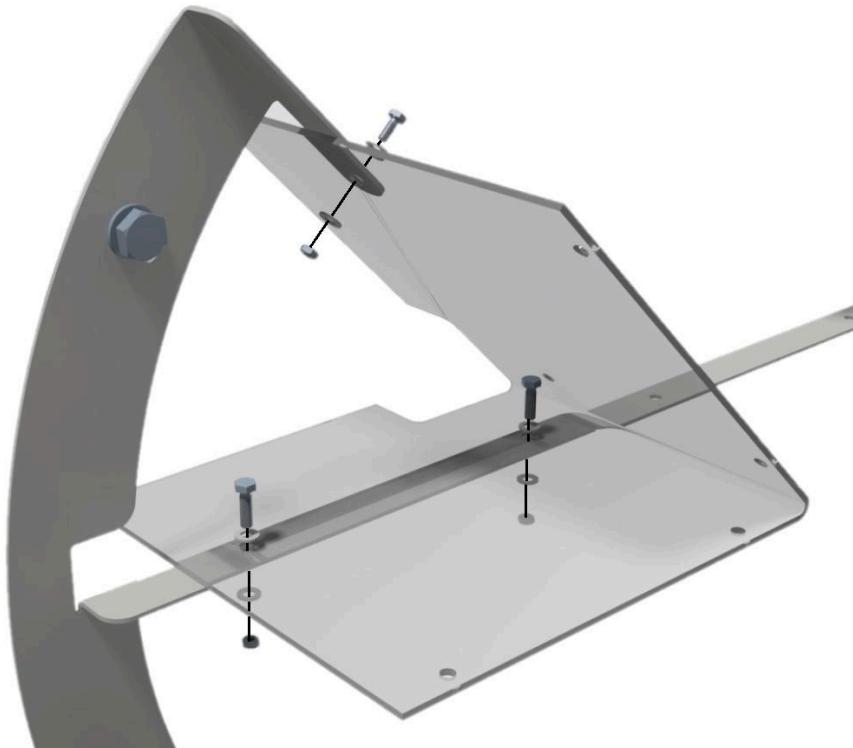
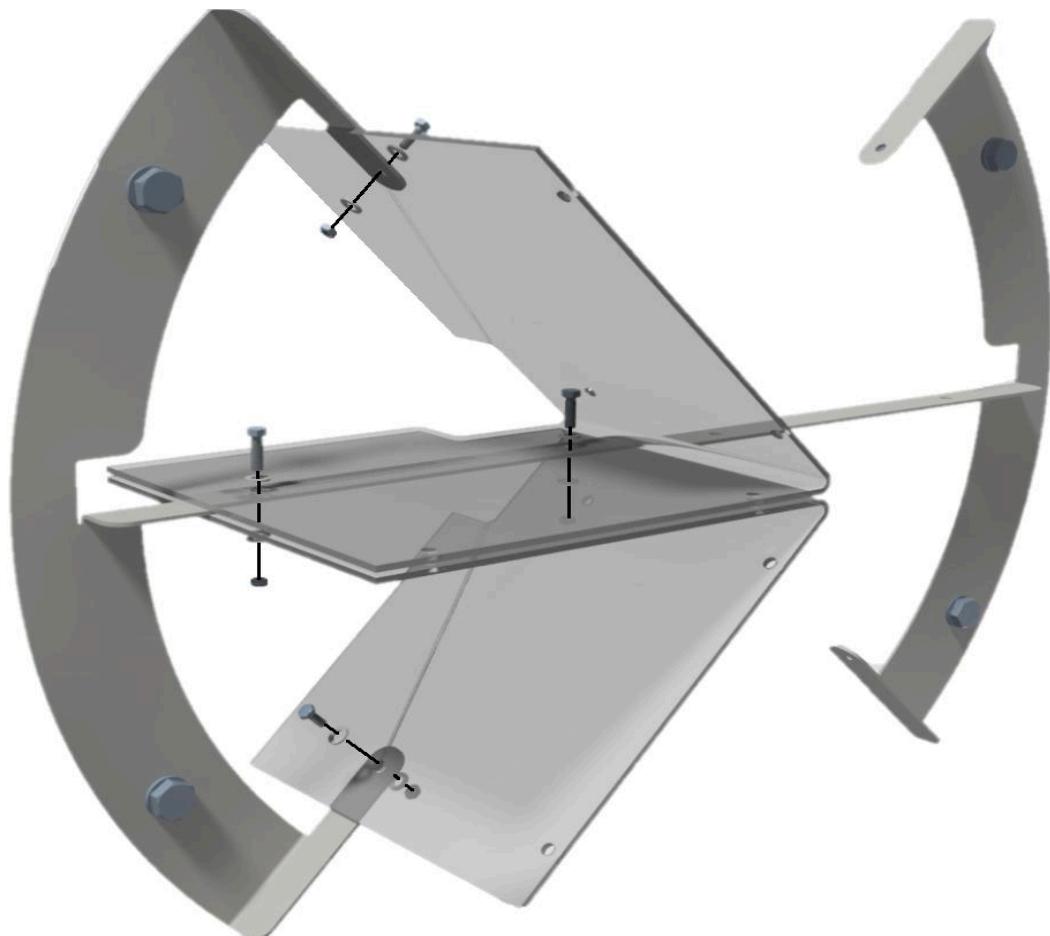


Figure 8: Connecting one air flow guide plate to mounting bracket

If two guide plates are used to guide the air flow, Figure 9 shows how they are connected to the mounting bracket.

Requirements for mounting one flow guide plate:

- 2x Air flow guide plate
- 4x hexagonal tap bolt m5 x 16
- 8x washer m5
- 4x lock nut m5



*Figure 9 Connecting two air flow guide plate to mounting bracket*

When exhaust guide plates are used in combination with an exhaust grille, the above mounting bracket cannot be used. In this case, the guide plates must be used the other way around, whereby they must be mounted to the exhaust grille with tyrap.

## 5 CONNECTING THERMOSTATIC SWITCH (50 HZ 230–400 VAC)

A thermostatic switch is built in to the winding of every fan as standard. When connected, this switch turns the motor off if voltage levels are exceeded and the internal temperature rises above 100 °C. The motor gets too hot if the fan becomes blocked, or similar.

Connecting the fan in this way increases its life span. Connect the fan as shown in Figure 10 and 14. The thermostatic switch is connected in series with the phase. The red line in Figure 10-14 is the connection between TB and U1.

**PLEASE NOTE: This thermostatic switch has no hard reset, so when the engine has cooled sufficiently it will restart. Therefore, always disconnect the plug from the power supply during maintenance!**

For 1~motor with capacitor and thermostatic switch

Airflow direction: V

Direction of rotation: clockwise

Cable colours:

U1 brown

U2 blue

Z1 black

Z2 orange

TB white

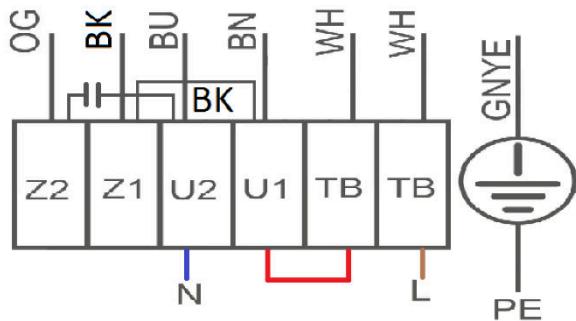


Figure 10 Wiring diagram ZN045



Figure 11 Connecting the thermostatic switch

NB: an external protective device with a hard reset is available on request.

External protective devices are available for all types of fans. In combination with the internal thermostatic switch, this protective device can turn off the installation via an alert and reset.

**A 400 V 3-phase fan must always be fitted with external thermal protection! A thermostatic switch which can be connected to external protection is also built into the winding of the 3-phase version.**

## 6 OPERATION/USING FOR THE FIRST TIME

Operating the Enfan is simple: if it is connected to the power supply it will start ventilating, if it is disconnected it will stop ventilating. It is possible to set the speed of the AC fans by adjusting the voltage at the plug with something like a control transformer or inverter. Please contact your supplier for more information. The speed control of an EC fan, based on a 0-10V signal, is described in sections 6.1.3 and 6.1.4.

### 6.1 Wiring schemes fans

#### 6.1.1 Connection diagram ZN045 AC fan 230 V ~1 50 Hz

If the ZN045 AC 230 V ~1 fan has a connection frequency of 60 Hz, it is connected identically to the fan operating at 50 Hz.

**Note: In this scheme, the thermostatic switch is not connected yet (see Figure 10 and 14) !**

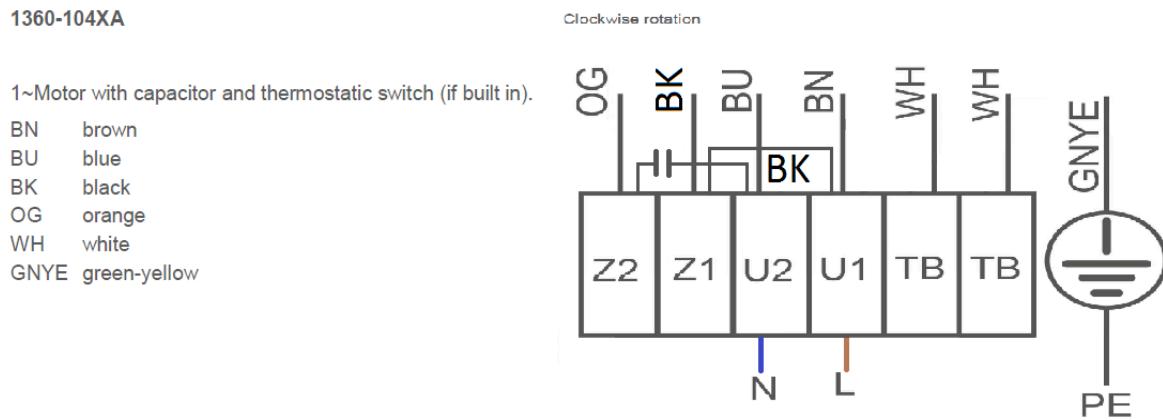


Figure 12 Wiring scheme ZN045 AC fan 230 V ~1 50 Hz

#### 6.1.2 Connection diagram ZN045 AC fan 230/400V D/Y ~3 50 Hz

1360-106XA

3~ motor with one speed and thermostatic switch (if built in).

U1	brown
V1	blue
W1	black
U2	red
V2	grey
W2	orange
TB	white

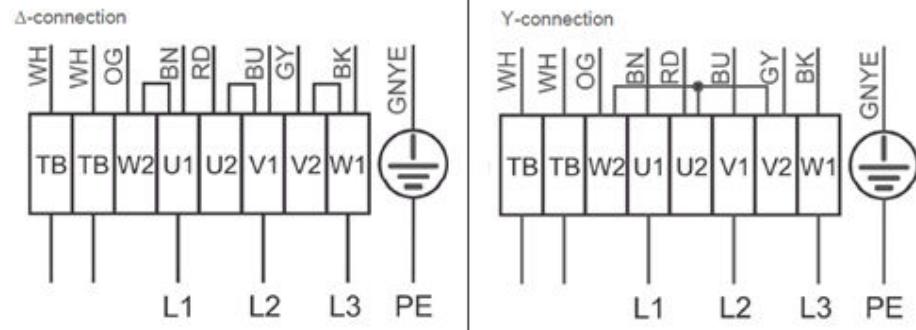


Figure 13 Wiring scheme ZN045 AC fan 230/400 V D/Y ~3 50 Hz

### 6.1.3 Connection diagram ZN045 EC-fan 200-277 V AC ~1 50/60 Hz

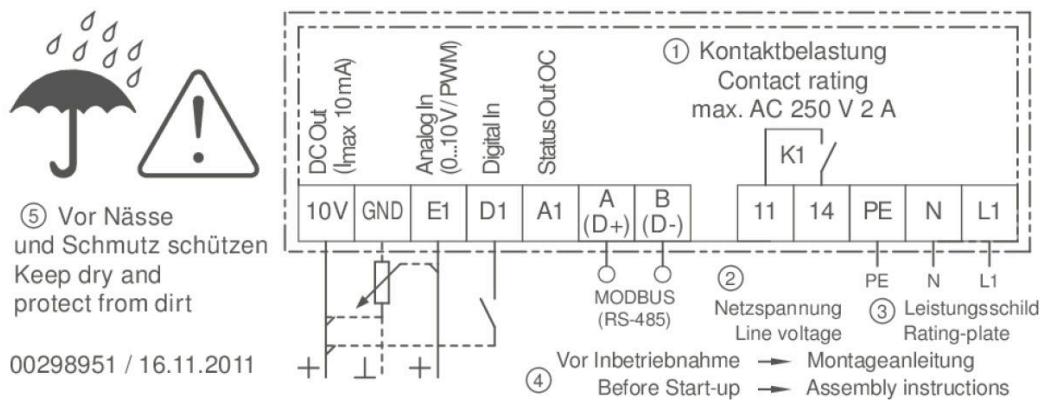


Figure 14: Connecting diagram ZN045-6IL

The power cable for the ZN045 is an 1-phase cable. This power cable must be connected to the following terminals inside the terminal box of the fan (see Figure 14):

- Live-wire (brown) to 'L1'
- Neutral-wire (blue) to 'N'
- Earth wire (green/yellow) to 'PE'

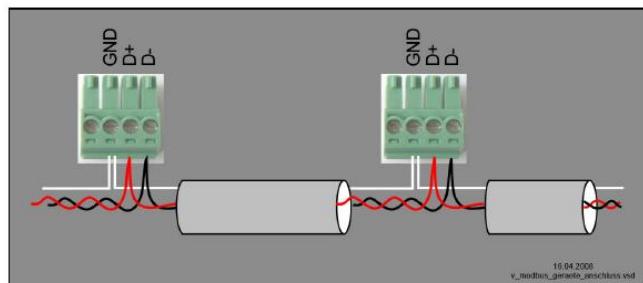
The main voltage where the EC-Fan is connected to must be corresponding to the voltage which is given on the type plate/sticker on the side of the fan. This main voltage must meet with the quality characteristics of EN50160 and the defined voltages of IEC60038.

The digital input (D1) is the external start on which the fan is turning on and off. When the terminals 'D1' and 'DC Out' are connected, the fan is enabled to switch on and off. The fan will operate following the preferred speed. The applied wire diameter is dependent on the length of the wire.

It is possible to regulate the RPM of the ZN045 by an external signal. The advice is to use a shielded cable for this external signal. There are multiple options to apply as an external signal:

- 0...10V + on E1, – on GND
- 0...100% PWM + on E1, – on GND
- Potentiometer + on 10V, – on GND and the signal on E1

The ZN045 EC-Fan is equipped with the possibility of MODBUS communication with a RS-485 interface. To use the MODBUS communication, terminals 'A (D+)' and 'B (D-)' must be connected. In the case of attaching multiple fans to each other with MODBUS, this must be done in a serial circuit like it's done in the following figure.



The recommended cables for using MODBUS communication;

- CAT5 / CAT7 wires
- J-Y (ST) Y 2x2x0,6
- AWG22 (2x2 twisted pair)

#### 6.1.4 Connection diagram ZG045

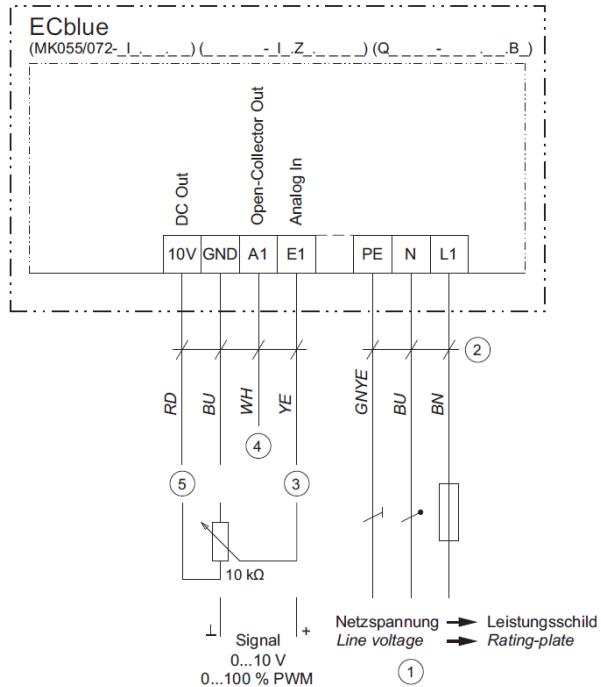


Figure 15 (left) Connecting diagram ZG045 EC

Figure 16 (right) Connecting feedback circuit in the ZG045 EC

The power cable for the ZG045 EC is an 1-phase cable. This power cable must be connected to the following terminals inside the terminal box of the fan (see Figure 15):

- Live-wire (brown) to 'L1'
- Neutral-wire (blue) to 'N'
- Earth wire (green/yellow) to 'PE'

The main voltage where the EC-Fan is connected to must be corresponding to the voltage which is given on the type plate/sticker on the side of the fan. This main voltage must meet with the quality characteristics of EN50160 and the defined voltages of IEC60038.

It is possible to regulate the RPM of the fans by an external signal. The advice is to use a shielded cable for this external signal. There are multiple options to apply as an external signal:

- 0...10V + on E1, - on GND
- 0...100% PWM + on E1, - on GND
- Potentiometer + on 10V, - on GND and the signal on E1

When a signal cable (4x 0.34 mm<sup>2</sup> LIY-CY shielded cable) is optionally purchased for a 0... 10V control, the following connections must be maintained:

Fan terminal block (see Figure 15)	Signal cable	Connection
Red (RD)	Brown	Not used
Blue (BU)	Green	- Connection 0... 10V
White (WH)	White	Not used
Yellow (YE)	Yellow	+ connection 0... 10V

The ZG045 has no external start. The EC-Fan will start as soon as the above described wiring is properly connected and the external signal is sufficient enough to run the fan.

The ZG045 has no possibility to use Modbus communication.

To read out the current RPM of the fan for feedback is possible by the connecting diagram of Figure 16. Place a  $5\text{k}\Omega$  resistor between the terminals '10V DC OUT' and 'A1 open-collector out'. The measured frequency between A1-GND gives the revolutions per second. Multiply the measured frequency with 60 to get the revolutions per minute (RPM).

## 7 MAINTENANCE



Make sure that there **is no** voltage on the system and that it is protected against re-activation before carrying out any maintenance work!

The Enfan requires relatively little labor in terms of maintenance. The maintenance of the Enfan is:

- Check that the fan can rotate freely. Do this by manually turning the fan according to the correct direction of rotation. For the direction of rotation, see the arrow on the fan blades.
- Keeps the suction and discharge side of the fan free of foreign objects and contaminants.
- If the fan blades and the fan housing are dirty, clean them with a damp cloth.
  - When cleaning, use clean water without any kind of harsh liquids or solvents
  - Do not point a high-pressure cleaner at the installation!
- After cleaning, run the fan at 80-100% for at least 30 minutes to allow any moisture to evaporate from the engine.
- The ball bearings in the fan are said to last 30,000 – 40,000 operating hours. After this time frame, it may be necessary to replace it (or have it replaced). This depends on the observations during checking for free rotation. The advice is to replace the ball bearings preventively after 40,000 operating hours.

When the Enfan is used in an environment with high relative humidity, it is recommended to run the fan at 80–100% for at least 2 hours per month. This is recommended to allow any moisture which has penetrated into the engine to evaporate. This prevents the fans from not starting after a long period of downtime.

Check once every six months whether the nuts and bolts with which the fan is attached are still properly secured and tighten if necessary. If these have become slightly loose, parts may vibrate loose and fall down, which can cause dangerous situations.

## 8 FAILURES AND REPAIRS

Experience has shown that failures are virtually nonexistent. What can happen in practice is that the thermal protection of the fan is triggered due to an internal defect, such as insufficient cooling.

The ventilator may become blocked due to obstructions on the inlet or outlet side. In many cases, however, it means that the fan has reached the end of its service life, and the Enfan must be replaced.

If the inflow or outflow side of the fan is dirty, the resistance can increase, causing the motor to become warmer. In the event that the engine overheats, it thermally shuts down.

In case the engine has become too hot, clean the inflow and outflow sides and free the fan so that it can run again.

## 9 DISASSEMBLY

Make sure the power plug is disconnected to prevent unintended and unwanted starting of the fan. Make sure the workplace is safe, then remove the self-locking nuts of the U-clamps. The Enfan can now be removed.

## 10 CE DECLARATION OF CONFORMITY

### EC DECLARATION OF CONFORMITY

(In accordance with Annex IIA of the Machinery Directive 2006/42/EC)

We,                   Van der Ende Pompen  
                         Aartsdijkweg 23  
                         2676 LE Maasdijk  
                         Nederland

declare, under sole responsibility, that the following machine;

Enfan®

to which this declaration relates is in conformity with the following directives;

Machinery Directive	2006/42/EC
Low Voltage Directive	2006/95/EC
EMC Directive	2004/108/EC

It is also, where appropriate, in conformity with the following standards or other normative documents;

n/a

The Netherlands  
Maasdijk  
14 January 2020

L. van der Ende

A handwritten signature in blue ink, appearing to read 'L. van der Ende', is positioned below the name and above a blue curved line.



## 11 UKCA DECLARATION OF CONFORMITY

### UKCA DECLARATION OF CONFORMITY

We, **Van der Ende Pompen**  
Aartsdijkweg 23  
2676 LE Maasdijk  
Nederland

declare, under sole responsibility, that the following machine;

Enfan®

to which this declaration relates is in conformity with the following directives;

Supply of Machinery (Safety) Regulations	2008:1597
Electrical Equipment (Safety) Regulations	2016:1101
Electro Magnetic Compatibility Regulations	2016:1091

It is also, where appropriate, in conformity with the following standards or other normative documents;  
n/a

The Netherlands  
Maasdijk  
15 December 2022

L. van der Ende

A handwritten signature in blue ink, appearing to read 'L. van der Ende', is placed here.

## **ATTACHMENTS**

- **CE declaration concerning fan**
- **UKCA declaration concerning fan**



## CE declaration concerning the fan

### EU declaration of conformity

- Translation -  
(english)

ZA89-GB 1615 Index 004  
00296770-GB

Manufacturer: ZIEHL-ABEGG SE  
Heinz-Ziehl-Straße  
74653 Künzelsau  
Germany

#### The products:

- Axial fan FB..., FC..., FE..., FN..., ZN...

#### The engine type:

- Asynchronous internal or external rotor motor
- Asynchronous internal or external rotor with integrated frequency inverter
- Electronically commutated (EC) internal or external rotor motor
- Electronically commutated internal or external rotor motor with integrated EC controller

#### These products comply with the following EU directives:

- Machinery Directive 2006/ 42 / EC , Annex II A

#### The following harmonized standards are in use:

EN 60204-1:2006 + A1:2009 + AC:2010	Safety of machinery; electrical equipment of machines; Part 1: General requirements
EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN ISO 13857:2008	Safety of machinery; safety distances to prevent danger zones being reached by the upper limbs

The person authorised for compiling the specific technical documentation is: Dr. W. Angelis, address see above.

Künzelsau, 20.04.2016  
(Location, date of issue)

ZIEHL-ABEGG SE  
Dr. W. Angelis  
Technical Director Air Movement Division  
(Name, Function)

*Dr. W. Angelis*

## UKCA Declaration concerning the fan

## UKCA Declaration of Incorporation

as defined by the Supply of Machinery (Safety) Regulations 2008  
No. 1597, PART 2 / Annex II B

- Original -  
(english)

ZA87\_UK-GB  
2022/17 Index 002

## The design of the incomplete machine:

- Axial fan DN., FA., FB., FC., FE., FF., FG., FH., FL., FN., FP., FS., FT., FV., VN., VR., ZC., ZF., ZG., ZN..
- Centrifugal fan ER., GR., HR., RA., RD., RE., RF., RG., RH., RK., RM., RR., RZ., WR..
- Cross-flow fan QD., QG., QK., QR., QT..

### The motor type:

- Asynchronous internal or external rotor motor (also with integrated frequency inverter)
- Electronically commutated internal or external rotor motor (also with integrated EC controller)

complies with the requirements in Annex I, Articles 1.1.2, 1.1.5, 1.4.1, 1.5.1 in Supply of Machinery (Safety) Regulations 2008 No. 1597.

The manufacturer is ZIEHL-ABEGG SE  
Heinz-Ziehl-Straße  
D-74653 Künzelsau

**The following harmonised standards have been used:**

EN 60204-1:2018

Safety of machinery: electrical equipment of machines: Part 1:

EN 12840-10:2008

## General requirements Safety of machinery - General principles for design - Risk assess- ment and risk reduction

EN ISO 13857:2019

ment and risk reduction  
Safety of machinery; safety distances to prevent danger zones  
being reached by the upper limbs  
The maintenance of the EN ISO 13857:2019 relates only to the

The specific technical documentation in accordance with Annex VII B has been written and is available in its entirety.

The following persons are authorized to compile the technical documents, address see above

The specific documentation will be transmitted to the official authorities on justified request. The transmission can be electronic, on data carriers or on paper. All industrial property rights remain with the above-mentioned manufacturer.

**It is prohibited to commission this incomplete machine until it has been secured that the machine into which it was incorporated complies with the stipulations of the Machinery (Safety) Regulations.**

Künzelsau, 27.04.2022  
(location, date of issue)

ZIEHL-ABEGG SE  
Moritz Krämer  
Head of Electrical Systems  
(name, function)

(signature)

ZIEHL-ABEGG





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