Information for use

Battery-Powered
Positive Pressure Fan

Quickee



Translation of the original information for use | V 1.0

Important information



These information for use contain important information for the commissioning, operation, maintenance and disposal of the fan. You will also find information and important instructions about your safety as well as to help in the event of a problem. The information for use belong to the fan and must be included if shared or sold.

The operator of this fan is responsible for ensuring that the instructions and notes in this manual are read, understood and followed by users before using the device.

Copyright



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Exclusion of Liability



Manufacturer rejects any liability for damages caused by violations of the instructions and notes listed in the information for use.
This applies in particular to:

- Damage caused by improper use and incorrect operation.
- Damage caused by the disregard of safety information in the information for use or of warning notices attached to the fan.
- Damage due to insufficient maintenance or maintenance not carried out.



Unauthorized conversions and changes to the device can affect the safety and are not permitted. This may cause the product no longer to meet product conformity requirements.

Contents

1 Identification 5
1.1 Contact information 5
1.2 Explanation of symbolic, visual information 5
1.3 Labels on the fan and in the information for use 6
1.4 Location of instructions 7
1.5 Version / information on changes 7

2 Description of the fan 8
2.1 Glossary 8
2.2 Function 8
2.3 Design 9
2.3.1 Main components 9
2.3.2 Operating positions 9
2.4 Components 10
2.4.1 Power supply 10
2.4.2 Battery 10
2.4.3 Battery Management System (BMS) 10
2.4.4 Electronic Speed Control (ESC) 11
2.4.5 Fan motor 11
2.4.6 Propeller 11
2.4.7 Locking lever for tilt adjustment 11
2.4.8 Control panel 11
2.4.9 Attachment magnet 12
2.5 Options 12
2.6 Technical data 13

3 Basic safety instructions 14
3.1 Responsibility of the operator 14
3.2 Personnel qualification 14
3.3 Intended use 14
3.4 Improper use 14
3.5 Predictable misuse 15
3.6 Residual risks 15
3.7 Reduction of noise and vibration 15
3.8 Safety instructions 15
3.8.1 Occupational safety 15
3.8.2 Technical condition of the fan 15
3.8.3 Electrical parts 16

4 Preparing the fan for use 17
4.1 Unpacking 17
4.1.1 Scope of delivery 17
4.2 Before commissioning 17
4.3 Transport and storage 17

5 Operating the fan 19
5.1 Setting up the fan 19
5.1.1 Operating environment 19

5.2 Control 20
5.2.1 Control panel 21
5.2.2 Meaning of the displays 22
5.2.3 Battery mode 24
5.2.4 230 V power-supply mode 24

6 Cleaning and maintenance 26
6.1 Cleaning 26
6.2 Battery maintenance 26
6.2.1 Charging the battery 26
6.2.2 Battery maintenance 27
6.2.3 Battery life 27
6.3 Repairs 28
6.3.1 Replacement parts 28

7 Troubleshooting 29

8 Decommissioning, disposal 30

1 Identification

1.1 Contact information

Manufacturer
BlowHard Fans
1906 Rye Street SE
Albany, Oregon 97322/USA
Phone +1 541 967 0063
Email support@blowhardfans.com
WWW www.blowhardfans.com

If you have questions, please have the following information ready:

- Your contact information
- Serial number of the fan
- Date of purchase
- Name of the dealer

1.2 Explanation of symbolic, visual information

When using these information for use, please pay special attention to passages with the following signal words:



Danger

Refers to an imminent danger that can lead to the most serious injuries to body and health or death.



Warning

Refers to a possible danger that can lead to the most serious injuries to body and health or death.



Caution

Refers to a potentially dangerous situation that could result in injuries or damage to property.



Attention

Refers to a potentially dangerous situation that could result in damage to property.



Important

Refers to application and information for use and other useful information.

Text formatting

Control elements or operation modes are printed in *italics*.
Example: Turn *power knob*.

1.3 Labels on the fan and in the information for use


Read the information for use before using


Wear protective gloves


Wear hearing protection and protective glasses


Wear safety shoes with protective toe caps


Recycle the product


Do not dispose of the product in the household waste


Warning of general danger


Warnung dangerous voltage


Warning against tipping


Warning of danger of crushing the fingers, hands, limbs


CE conformity labels


Copyright notice


Legal notice

1.4 Location of instructions

These information for use must be on the fan available to the users.

1.5 Version / information on changes

Product designation: Battery-Powered Positive Pressure Fan
Document designation: BA_Quickee_EN_V10

Edition	Date	Information on changes
V 1.0	Dec. 03, 2019	First edition

2 Description of the fan

2.1 Glossary

Term	Description
AC	**A**lternating **C**urrent.
AMCA standard	American standard for air power measurement (Air Movement and Control Association).
Ventilation mode	The fan at the low power level creates air circulation in the room.
BMS	**B**attery **M**anagement **S**ystem.
DC	**D**irect **C**urrent.
Trickle charging	The phase of continuous battery charging after final charging has finished.
ESC	**E**lectronic **S**peed **C**ontroller. .
Explosive zone	Areas in danger of explosion.
Final charging	Second phase of battery charging, during which the battery is charged from 90% to 100%.
IP 67	Degree of protection of the housing: protection against short times under water.
Li-ion battery	Lithium-ion battery technology.
Positive pressure mode	The fan at full power generates high pressure, which pushes smoke and heat out of the room.
Fast charging	First phase of battery charging, during which the battery is charged up to approx. 90%.

2.2 Function

The *Quickee* is a portable, fully integrated, electrically operated battery-powered positive-pressure fan designed for the following uses:

- Positive-pressure ventilation of rooms for fire brigades and emergency service organizations.
- Optionally, a water mist ring can be used to reduce the heat radiating from a fire.
- Optionally, spiral suction hoses can be used to suck out or push out gases from rooms without an exhaust opening (so-called dead rooms or trapped rooms).

2.3 Design

2.3.1 Main components

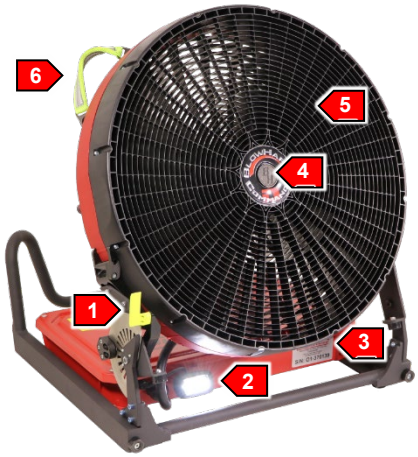


Figure 1

1 Locking lever for tilt adjustment
2 Work light
3 Type label
4 Magnet to attach accessories
5 Fan grill
6 Handle

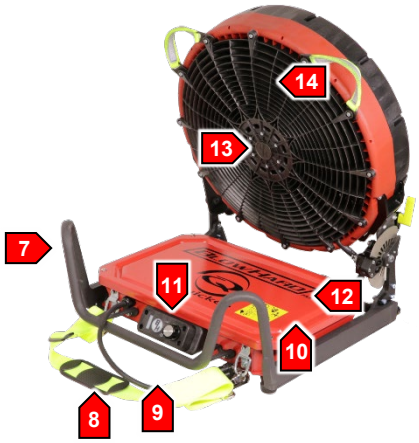


Figure 2

7 Carrying handle
8 Shoulder strap
9 Power plug 230 V (110 V)
10 Eyelets for shoulder strap
11 Control panel
12 Battery compartment with control electronics
13 Fan motor
14 Fan grill

2.3.2 Operating positions



Figure 3

Transport and storage



Figure 4

Room / positive-pressure ventilation



Figure 5

Fan facing downward

The fan blade housing can be opened up a maximum of 180° from the folded (transport) position.

2.4 Components

2.4.1 Power supply

The fan receives its power supply from a 230 V power plug or from a 110 V power supply. This feeds the internal switching power supply, which is equipped with integrated protection functions.

The fan consumes only about 4 A from a 230 V outlet. That means two fans can be operated on one 230 V outlet with a 10 A fuse.

2.4.2 Battery

The fan is equipped with a lithium-ion battery pack. The battery pack must always be charged according to the included charging instructions to prevent damage or premature ageing (see Chapter 6.2).

It is protected from overcharging, deep discharging, and excessive temperature.

2.4.3 Battery Management System (BMS)

An integrated charger circuit in the BMS means there is no need for an external battery charger. The battery is automatically charged when the fan is switched off and is plugged into a 230 V power supply.

The BMS automatically protects the batteries from overcharging, deep discharge, and excessive temperature.

An automatic power switch is also integrated in the BMS. When the fan is plugged into a 230 V power supply, it switches to being powered by the grid. The fan then runs at full power directly from the power grid, thus protecting the batteries. If the power supply is interrupted, it automatically switches to battery-powered operation.

2.4.4 Electronic Speed Control (ESC)

The integrated electronic speed control maintains a constant speed of the brushless motor to ensure uniform air flow and constant air pressure.

2.4.5 Fan motor

The fan motor is a compact, rugged DC motor with a neodymium permanent magnet.

2.4.6 Propeller

The fan has a propeller specially designed for this usage. It reduces air turbulence and air noise and creates a high level of air pressure.

2.4.7 Locking lever for tilt adjustment

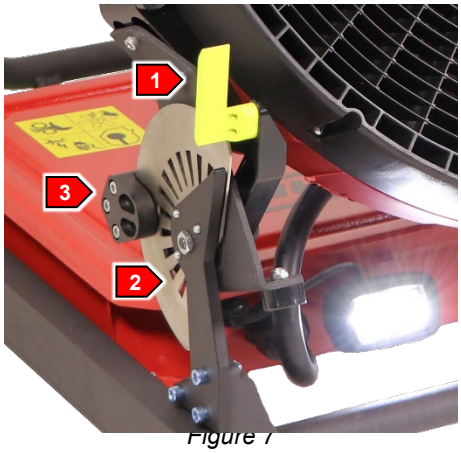


Figure 7

1 Locking lever for tilt adjustment
2 Brake disc
3 Brake shoes

The *locking lever for tilt adjustment* (**1**) must be used to position the propeller housing or to change the tilt angle of the housing. Using this, the propeller housing can be positioned smoothly in the desired position using the handles.

2.4.8 Control panel

The fan is equipped with an easy-to-use control panel.
For more information, see Chapter 5.2.

2.4.9 Attachment magnet



A strong magnet is built into the centre of the fan grill (see Figure 1 (4)), to which accessories can be temporarily attached.

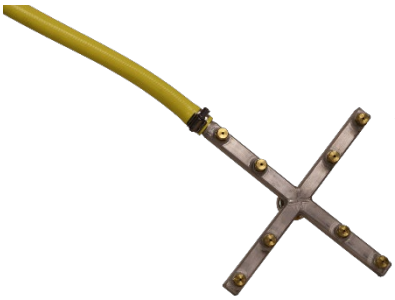
Figure 8

2.5 Options



Water mist ring
Output: 8 l/min.

Figure 9



Water mist ring
Output: 60 l/min.

Figure 10



Suction / ventilation tube

Figure 11

2.6 Technical data

Dimensions, weight	
Total weight, including battery and electronics	20.5 kg
Dimensions	534x534x248 mm

Performance	
Operation time in positive pressure ventilation mode (at maximum power) (*)	45 min.
Operation time in ventilation mode (*)	4 h
Operation time with power grid connection	infinitely
Fan power (according to the AMCA)	19,369 m^3/h

Power supply / battery	
Charging time (up to 90%)	1.5 - 2 h
Charging time (final charging)	1 h
(Full) charging cycles	up to 500
Power consumption 230 V during fan operation	8 A
Power consumption 230 V during battery charging	4 A
Minimum output of emergency electrical generator for power output (fan operation)	2.5 kW

Environment	
Protection rating	IP 67
Operating temperature	-20 - +60 °C
Storage temperature (when charged)	0 - +50 °C

(*) The battery operation times provided refer to a battery in good condition and to environmental temperatures within the positive range.

3 Basic safety instructions

The following basic safety instructions must be observed when operating the fan.
It is essential to observe the warning and safety labels on the fan.
Safety regulations on operation and maintenance are listed in the relevant sections and must be complied with!

3.1 Responsibility of the operator

- The operator must ensure that the fan is operated only by authorized and trained personnel.
- The operator must ensure that users are familiar with the tactical approach of positive pressure ventilation to achieve the best results when ventilating.
- The operator must ensure that all users know the safety regulations.
- The information for use must be available to the users and accompany the fan at all times.

3.2 Personnel qualification

- Technical understanding is required to use this fan.
- The user must be aware of the safety regulations.
- The user must have tactical knowledge of positive pressure ventilation and be able to provide documentation of successful training.
- The user is obliged to read the information for use and to observe the instructions provided. If parts of the information for use are not understood, these points must be clarified with the manufacturer.

3.3 Intended use

- Positive-pressure ventilation of rooms for fire brigades and emergency service organizations.
- Optionally, a water mist ring can be used to reduce the heat radiating from a fire.
- Optionally, spiral suction hoses can be used to suck out or push out gases from rooms without an exhaust opening (so-called dead rooms or trapped rooms).

3.4 Improper use

- Use in hazardous areas
- Operation while disregarding safety regulations
- Operation using disabled, modified / defective safety equipment
- Operation using defective device parts and components

- Operation as a thrust device (creating movement with the air pressure from the fan)

3.5 Predictable misuse

When operating the fan, please pay special attention to the following instructions:

- Dangerous gases (e.g. exhaust from internal combustion engines, etc.) must not be blown into a room by the airflow from the fan.
- Before using the device, the information for use must be read and understood by the users.

3.6 Residual risks

Due to the ageing of the battery, the operating time may be shorter than specified in the technical data. Therefore, connect a 230 V power supply as soon as possible.

3.7 Reduction of noise and vibration

Prevent unnecessary noise as much as possible. To do that, set the propeller speed to the lowest level needed for the current use whenever possible. This also increases the battery operation time.

3.8 Safety instructions

3.8.1 Occupational safety



- Users must wear the personal protective equipment required by national legislative or internal company accident prevention regulations.
- Always wear protective glasses, hearing protection, work gloves, and safety shoes.
- Country-specific statutory accident prevention regulations must be complied with.
- Country-specific firefighting regulations must be complied with.
- Keep bystanders away from the area the fan is being used.
- Accessories may only be attached when the fan motor is switched off or has been removed.

3.8.2 Technical condition of the fan

- The fan must only be used with the safety equipment installed, in particular the protection grills on both sides of the propeller.
- Never use the fan if there is a known malfunction.
- Conversions and/or modifications to the fan are not permitted.

3.8.3 Electrical parts



- The supply voltage for charging the batteries must be 230 V / 50 Hz or 110 V / 60 Hz.
- When used outdoors, use only tested and approved extension cords for the fan.
- Never touch damaged cables or connectors. Faulty cables must immediately be replaced by a technician.
- Do not place the fan under water.
- Do not allow electrical connections or the plug to get wet.
- Before working on electrical installations, the fan must be switched off and disconnected from the power supply.
- Because of the built-in battery, the components in the battery compartment are also under electrical tension when the power plug is not plugged in. During maintenance work on the inside of the battery compartment, the battery pack must first be disconnected (this work must only be carried out by specialists).

4 Preparing the fan for use

4.1 Unpacking

Take the fan out of the box and remove the padding.

If possible, the box and foam braces should be saved in case the device needs to be returned later. If the fan needs to be returned later, these packaging components will be very helpful, ensuring that damage does not occur during transport.

4.1.1 Scope of delivery

The delivery includes the following components:

- Battery-Powered Positive Pressure Fan
- Shoulder strap
- Information for use

4.2 Before commissioning

Before commissioning, please carry out the following visual inspection:

- The delivery is complete in according to Chapter 4.1.1.
- There are no parts that have come loose or been broken during transport.
- The *power knob* on the control panel is not damaged.

If defects or missing parts are found upon receipt, immediately contact the manufacturer or your dealer.

Important

After unpacking, the battery must immediately be charged completely.

4.3 Transport and storage

For transport and storage, the fan is folded up (see Chapter 2.3.2, *Figure* 3) and carried by the handles, the grips or the shoulder strap. The fan must be stored in a dry place.

Warning | **Folding the fan**

Danger of crushing!

- ➢ When folding the device, do not place fingers/hands/body parts between the protective grill and the battery compartment.
- ➢ Wear work gloves.

Warning | **The fan can tip over or fall during transport/setup**

Danger of crushing body parts!

- Secure the fan during transport and setup so that it does not fall and only set the fan up on firm, level ground.
- Wear safety shoes.

Important

Leave the fan plugged into a power outlet when it is not in use. This will ensure that the battery is always charged!

5 Operating the fan

5.1 Setting up the fan

Before commissioning, place the fan on a flat, firm surface. Push the *tilt adjustment locking lever* (Figure 1 (**1**)) and tilt the fan up into the desired vertical position.

Warning | **Fan movement caused by air pushback**

Risk of injuries caused by the fan moving or tipping over!

- Set up the fan on a firm, level surface.
- The fan must always be supported by all 4 feet.
- Do not set up the fan on ice or slippery surfaces.
- Do not move the fan when the motor is running.

Important

Set up the fan so that the air current is directed to the centre of the input port.

Important

Before using the fan, ensure that you are familiar with the tactical approach of positive pressure ventilation to achieve the best results when ventilating.

5.1.1 Operating environment

The battery compartment with the control electronics is protected by a thick housing (for IP protection level, see Chapter 2.6, Technical data).

Danger | **Electrical voltage**

Danger of injury or death due to electrical shock if the fan or the electrical plug comes into contact with water!

- Do not place the fan into water and do not immerse it.
- Do not place the power plug or the extension cable plug in water and do not immerse them.

Important

To ensure safe operation for everyone involved, if it is dark, illuminate the entire work area and in particular the control elements of the fan as well as the entire surrounding environment of the rooms to be illuminated!

5.2 Control

Warning | **Rotating propeller blades**

Danger of injury from rotating propeller blades!

- Do not put objects through the protective grill.

Warning | **Rotating propeller blades**

Danger of injuries if clothing or long hair becomes caught in the rotating propeller blades!

- Wear close-fitting clothing.
- Wear a hairnet or helmet over long hair.
- Do not wear rings, chains or other jewellery.

Warning | **Objects are sucked in or blown out**

Risk of injury especially to the eyes due to objects, such as rocks, wood splinters, etc., sucked in or blown out!

- Do not direct the air current towards people or animals.
- Do not stand directly in the air current.
- When wearing hearing protection, eye contact must be maintained with other persons currently on duty.

Caution | **Noise and high air speeds in the air current**

Danger of injuries to the hearing, the eyes, or other body parts caused by rotating propeller blades!

- Wear hearing protection, protective glasses / eye visors, and work gloves.
- When wearing hearing protection, eye contact must be maintained with other persons currently on duty.

Caution | **Dangerous gases in the air**

Danger of injuries to the eyes, the skin, or respiratory organs caused by dangerous gases escaping rooms under positive-pressure ventilation!

- Do not stay in areas where air is coming out of a room.
- Wear protective glasses / eye visors.

Important

Due to the ageing of the battery and at low temperatures, the operating time may be shorter than specified in the technical data. Therefore, connect a 230 V power supply as soon as possible.

Important

Optional accessories (water mist rings, ventilation tube, etc.) must only be attached to or removed from the fan when it is switched off (OFF position).

5.2.1 Control panel

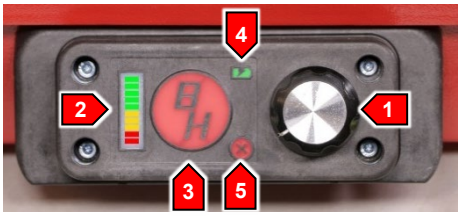


Figure 12

1 Power knob
2 Battery charge level display
Red = 10 – 20%, Yellow = 30 – 50%, Green = 60 – 100%
3 Status display
4 Battery display
5 Error display

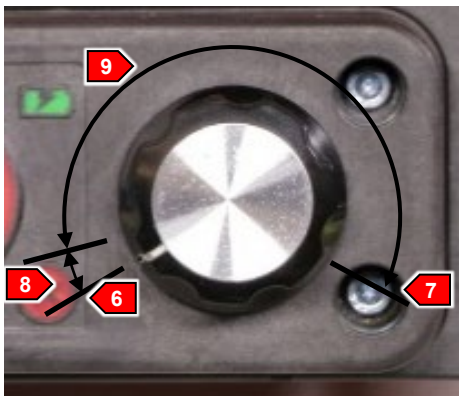


Figure 13

6 OFF position
7 Maximum speed
8 Zero position
9 Speed regulation area

Power knob

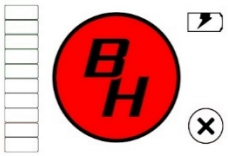
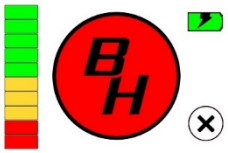
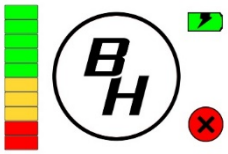
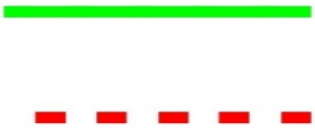
The *power knob* (Figure 12 (**1**)) is used to switch the fan motor on and off and to smoothly regulate the motor speed, i.e. the air pressure, between the *zero position* and the *maximum speed*.

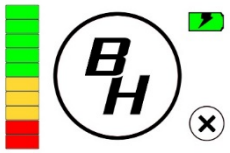
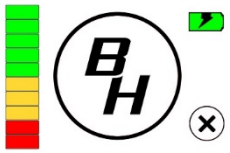
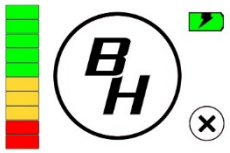
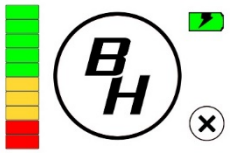
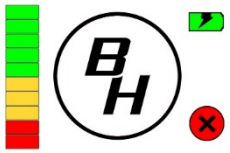
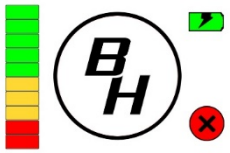
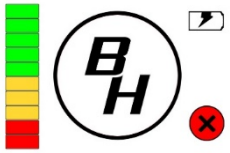
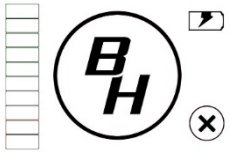
Attention
Turn the *power knob* carefully in each direction to the end stops and do not try to move it past them!

Zero position

The *zero position* (Figure 13 (**8**)) is a position of the *power knob* that was created to check the battery charge level (Figure 12 (**2**)) without switching on the fan. The battery charge level display does not function when the *power knob* is in the speed regulation area.
In the zero position, the work light flashes as well.

5.2.2 Meaning of the displays

Power knob	230 V power connection	Operating mode	Status	Display	Light flashing sequence
ON	Power-supply operation (Internal voltage > 10 V)	Normal operation	Battery pack installed		
			No battery pack		
	Power-supply operation (Internal voltage < 10 V)		Battery pack installed		*BH* control display flashing
			No battery pack		*BH* control display flashing
	Battery mode (no mains power supply)	Normal operation	Battery in operation Battery voltage > 33 V No deep discharge		
		Error	Battery voltage < 33 V or deep discharge or temperature error (*)		
			No battery pack No operation No power supply		

Power knob	230 V power connection	Operating mode	Status	Display	Light flashing sequence
OFF	Power-supply operation	Charging mode	Fast charging		
			Final charging or Temperature error (**)		
			Trickle charging		
			Charged		
			Battery refresh attempt (Battery was deep-discharged)		
		Error	Temperature error (***)		
			Battery pack defective		
			No battery pack		

Definition of temperature errors:

	Internal temperature	
(*)	< -20°C	> 65°C
(**)	> 0°C	< 5°C
	or	
	> 45°C	< 55°C
(***)	< 0°C	> 55°C

5.2.3 Battery mode

The green LED on the *battery display* (Figure 12 (**4**)) stays continuously lit up and indicates that the fan is operating in battery mode.
Turn the *power knob* (Figure 12 (**1**)) clockwise until it clicks.
The *power knob* is now in the *zero position* (Figure 13 (**8**)). The *BH status display* (Figure 12 (**3**)) is lit up red and the work light (Figure 1 (**2**)) is flashing.

Turn the *power knob* further clockwise past the zero position, which starts the fan and allows adjustment to the desired speed between the minimum and maximum values. The work light stays lit up continuously.

The speed directly influences the fan power level and the battery operation time. If the speed is reduced, the battery operation time can be increased by several hours.

The work light starts flashing to indicate that the battery is almost empty. In this case, the fan must be plugged into a 230 V power supply as soon as possible.

Important
If the red *Error display* (Figure 12 (**5**)) is lit up, there is a problem with the battery. However, the fan can still be used by plugging it into a 230 V outlet (unless the BMS is defective).

5.2.4 230 V power-supply mode

Power knob in the OFF position

The battery is automatically charged by the Battery Management System (BMS).

Power knob in zero position or speed regulation area

Turn the *power knob* further clockwise past the zero position, which starts the fan and allows adjustment to the desired speed between the minimum and maximum.

If the *power knob* (Figure 12 (**1**)) is in the zero position or the speed regulation area, the battery is not being charged and the fan motor is powered directly by the 230 V mains power connection. The *BH status display* is illuminated.

The fan can be operated for as long as needed using the 230 V power supply.

If the 230 V power supply is disconnected during operation, the BMS will automatically switch to battery mode and the fan will continue to run until the battery is empty.

Important

After first being used in battery mode during use, a 230 V power supply (domestic socket, emergency electricity generator, power inverter) should be found as soon as possible. This will ensure continuous, long-term ventilation.

6 Cleaning and maintenance

6.1 Cleaning

After use, the fan must be cleaned on the outside with a damp cloth and dirt, leaves, etc., should be removed from the protective grill.

Important
Do not clean the fan with a high-pressure cleaner!

6.2 Battery maintenance

6.2.1 Charging the battery

Important
Recharge the battery completely after each use!

Important
Leave the fan plugged into a power outlet when it is not in use. This will ensure that the battery is always charged!

Step 1
The power knob must be turned counterclockwise to the end stop and be in the *OFF* position (click).

Important
If the power cable is not plugged in and the green LED of the battery display (Figure 12 (**4**)) stays illuminated continuously and the work light is flashing, the *power knob* is in the *zero position*. The fan may not be running, but the system is still switched on. In this position, the battery is **not** being charged. Make sure that the *power knob* is completely off (OFF position) to charge.

Step 2

Plug the power cable into a 230 V socket, using an extension cord if necessary. If the battery is fully charged, the battery display (see Figure 12 (**4**)) is illuminated green.
See Chapter 5.2.2 for the meanings of the other status displays.

Charging times

The charging times are listed in Chapter 2.6 Technical data.
The battery in the fan has a built-in, intelligent charging system. If the power cable is plugged in and the *power knob* is switched off, this system controls battery charging, including trickle charging, monitors

the battery condition at the same time, and initializes a battery refresh program, if necessary.
This automatic battery maintenance may take a long time. That is why the fan should stay plugged into the power socket as long and as often as possible, so that this battery maintenance can be performed. The fan can be used during this battery maintenance. This will not damage the battery or the fan.

6.2.2 Battery maintenance

The following important points must be observed:

- The charging is optimal at normal ambient temperatures of 10-30°C.
  Extreme environmental temperatures outside of this temperature range could increase the charging time, prevent charging, or reduce the battery life.
- If the fan cannot constantly be plugged into the mains power supply, it should be recharged every 3 months.
- Recharge the battery after every time it is used, even for a short time. The integrated Battery Management System (BMS) monitors charging so that the battery pack is not damaged, even if the fan stays plugged into a power socket for a long period of time.
- Batteries must not maintain a low battery condition for an extended period of time. Failure to do so might damage the battery.
- Depending on the nature and properties of each individual battery cell, trickle charging may take several hours before the battery management system shuts off. Trickle charging may start again during extended periods of constant charging because the Battery Management System (BMS) consumes a small amount of energy.
- The fan can still be used even if the battery display has not switched off, i.e. if the battery is not fully charged.

6.2.3 Battery life

Operation times become shorter when the battery has reached the end of its life.
The operation time can be checked from time to time by running the fan at maximum power and measuring the operation time.
After being fully charged, the operation time should reach the value in the technical data (see Chapter 2.6 *Operation time positive pressure ventilation mode (at maximum power)*).
When the battery has reached the end of its life, the operating time goes down to about 80% of the original running time.

To replace the battery pack, contact the manufacturer or your dealer.

Important

The battery pack must always be replaced as a whole unit. Individual cells of the battery pack must not be replaced on their own!

Important

Regular maintenance of the battery is very important for a long battery life. The battery must be completely discharged on a regular basis (approx. every three months when the fan is not being used). Turn it on, let it run and charge it again.

6.3 Repairs

Repairs and maintenance in the battery compartment may only be done by an official repair center. The following safety instructions must be observed.

Danger | **Electrical voltage**

Danger of injury or death in case of contact with live parts under electrical tension!

- Always unplug the 230 V network connection on the fan before any maintenance work.

Warning | **Stored energy in the battery**

Danger of injuries caused by energy stored in the battery, even if the mains power supply is unplugged!

- Before maintenance work in the battery compartment, disconnect the battery pack from the electrical components.

Warning | **The fan can tip over or fall during transport/setup.**

Danger of crushing body parts!

- Secure the fan during transport and setup so that it does not fall and only set the fan up on firm, level ground.
- Wear safety shoes.

6.3.1 Replacement parts

Only appropriate replacement parts specified by the manufacturer must be used.

Please contact your dealer or the manufacturer.

7 Troubleshooting

- Do not force the *power knob* too far clockwise or counterclockwise, as this may cause damage to the potentiometer. This means that the fan may no longer be able to be started or stopped.
- When switching on the fan, make sure that the power knob clicks into the ON position (zero position) to start the fan.
- When switching off the fan, make sure that the *power knob* is turned counterclockwise to OFF and clicks after the fan has stopped and the continuously lit green *battery display* LED has turned off.
- Do not try to repair, replace or modify the motor, propeller, battery components, electrical components or electronic circuit boards. This may cause material damage or injuries and cause the product no longer to meet product conformity requirements.

The following table is a guide to troubleshooting malfunctions during operation of the fan. It is not intended for making repairs to the fan.

Problem	Causes	Correction
The red LED of the *Error display* is flashing. The green *battery display* is continuously lit. Does not start.	The battery is discharged. Temperature error. No mains power supply available.	Connect to 230 V power supply and charge battery
The red LED of the *Error display* is illuminated.	Defective battery or BMS	Contact dealer/manufacturer
Green LED lit, does not start.	*The power knob* is ON but in the zero position	Slowly turn clockwise until it starts
No LED, does not start.	Faulty battery or faulty BMS, ESC	Contact dealer/manufacturer
Rattling noise.	Loose mounting elements	Check and tighten mounting elements
Scraping noise.	Propeller blade in contact with housing	Contact dealer/manufacturer
Smoke or foul odour.	Overheating, defective electronics	Contact dealer/manufacturer
Further error displays on the control panel.	Various	See *Meaning of the displays*, Ch. 5.2.2.

8 Decommissioning, disposal

The disposal of the fan and particularly the proper disposal of the built-in rechargeable battery packs must be carried out in accordance with the specific national regulations by a specially created disposal operation or by the dealer.



The fan and the battery must not be disposed of with normal waste.

Warning | **Stored energy in the battery**

Danger of injuries caused by energy stored in the battery, even if the mains power supply is unplugged!

- Before maintenance work in the battery compartment, disconnect the battery pack from the electrical components.

Warning | **The fan can tip over or fall during transport/setup.**

Danger of crushing body parts!

- Secure the fan during transport and setup so that it does not fall and only set the fan up on firm, level ground.
- Wear safety shoes.

The fan includes the following main components:

Components	Main materials	Disposal
Housing	Aluminium	Disposal operation
Fan grill	Plastic	Disposal operation
Propeller	Plastic	Disposal operation
Fan motor	Metal/copper/magnets	Electrical waste
Battery pack	Lithium-ion battery	Electrical waste
Electronics	Electrical components	Electrical waste