

# Operating Manual for Fans

## 1. SAFETY REGULATIONS AND INFORMATION

Read the operating manual carefully before commencing work at the product. Pay attention to the following warnings to avoid risk to persons or malfunctioning. This operating manual is an integral part of the product. In the event of resale or change of ownership the operating manual must accompany the product. This operating manual may be copied and provided as information on potential risks and their avoidance.

### 1.1 Hazard classification of warning notices

The following risk ratings are used in this operating manual to denote potential risk situations and important safety instructions:

**DANGER:** This is a potentially dangerous situation and warns of an impending health risk or risk of fatal injury if this warning is not observed. Observe this warning.

**WARNING:** The dangerous situation can occur and can result in major or fatal injuries if the warning is not observed. Work with extreme care.

**CAUTION:** The dangerous situation can occur and can result in minor injuries or damage to property if the warning is not observed.

**NOTE:** A potentially dangerous situation can occur and results in damage to property if not avoided.

### 1.2 Qualification of personnel

Only skilled electricians are permitted to install the product, to carry out the test run and to work at the electrical unit. Only instructed and authorized skilled personnel are permitted to transport, unpack, operate and service the product.

### 1.3 Basic safety regulations

Safety risks related to the product must be reassessed after installing in the final device. The operating manual was developed in accordance with European market requirements and may need adapting to the market requirements of the country in question.

Do not make any changes to the product.

#### **WARNING: Impermissible high load**

Stop the product immediately after impermissible loading (e.g. impact, heat, overvoltage).

#### **ADDITIONAL FOR AC-FANS**

**CAUTION: In the event of a fault, the product is energized.**

Product has a basic insulation. Do not touch the product after installing

### 1.4 Electrical voltage and current

#### **DANGER: Electrical voltage**

Regularly check the electrical equipment of the product. Eliminate immediately loose connections and defective cables.

### 1.5 Safety and protective functions

**DANGER: Missing safety device and faulty protective equipment.**

Without protective equipment severe injuries can occur, e.g. by taking hold of the rotating equipment. Operate the product with protection guards only.

### 1.6 Electromagnetic radiation

Electromagnetic compatibility (EMC) may affect the system integration of the product due to interaction. Ensure the electromagnetic compatibility of the entire system.

### 1.7 Moving parts

#### **DANGER: Self-starting product**

If voltage is applied, the motor automatically restarts after a mains failure or when blocking has been eliminated. Do not stand in the danger zone of

the product. Switch off the mains voltage when working on the product and secure against switching on again.

***DANGER Rotating impeller:***

Contact with the impeller may result in injuries. Long hair, loose-fitting garments and jewellery can be caught and pulled into the product. Risk of injury. Before starting the product, ensure that it is securely fixed and that the guards are in place. Do not wear loose-fitting garments or jewellery when working on moving parts. Protect long hair by wearing a hair net.

***WARNING: Parts transported by the airflow***

The product can transport small parts in the airflow and catapult them out. Ensure that there are no loose small-parts in the intake and exhaust area. Do not stand in the danger zone of the product.

***CAUTION: High risk of fire spreading***

Can cause fire to spread. Never direct the airflow (intake/exhaust side) at a potential source of fire.

**1.8 Hot surface**

CAUTION High temperature at motor housing. Risk of burns

Provide adequate protection against accidental contact.

**1.9 Storage**

Store the product in a dry and clean environment that is well protected. Ensure that the storage temperature is adhered to. If the product is not operated for a longer period of time, we recommend running it for approx. 15 minutes annually to move the motor bearings.

**1.10 Cleaning**

***NOTE: Product damaged during cleaning***

Clean the product carefully with a moist cloth without applying pressure to the rotor.

Do not use cleaning agents that contain acids, caustic solutions or solvents.

**1.11 Disposal**

When disposing of the product, observe all requirements and regulations that are relevant in your country.

**2. INTENDED USE**

The product is designed exclusively as a built-in device for conveying air according to the technical data.

Every use that is not in accordance with the intended purpose, is regarded as misuse of the product. On-site installations must comply with the mechanical, thermal and service life requirements.

**2.1 Intended use includes:**

- Operating the product with all protective equipment
- Do not put the product into operation before it has been installed in the customer's application
- Observation of the operating manual

**2.2 Use for other than the intended purpose**

Using the product for the purposes mentioned below is prohibited and can be dangerous

- Conveyance of air that contains abrasive particles.
- Conveyance of air that has a highly corrosive effect.
- Conveyance of air that has a high dust load, e.g. vacuuming sawdust.
- Conveyance of inflammable gases/particles.
- Contact with materials that can damage the product, e.g. acids, caustic solutions, solvents.
- Exposure to radiation that can damage product components, e.g. strong UV rays or thermal radiation.
- Operating during external vibration.
- Operating the product close to inflammable materials or components.

- Operating the product in an explosive atmosphere
- Use of the product as a safety component or for performing safetyrelevant functions.
- Operating in medical devices with life-sustaining or life-saving function, if not validated.
- Operating in non-stationary systems, e.g. railway vehicles, aircraft and spacecraft, if not validated.
- Operating with fully or partially dismantled or manipulated protective equipment.
- Operating the product under conditions other than those mentioned in the technical data.
- Furthermore, all fields of application not mentioned under intended use.

An in situ assessment must be conducted of the heating behavior (appropriate and inappropriate operation), the protection against contact, electrical shocks, impact of foreign objects or water and the usage at altitudes higher than 2000 meters.

### 3. TECHNICAL DATA

Drawing, see on the backside of packing. The packing is a part of this operating manual. Therefore do not dispose the packing.

### 4. CONNECTION AND COMMISSIONING

#### 4.1 Connect mechanical parts

**CAUTION:** *Risk of cutting/squashing when removing the product from the packaging and during mounting.*

Grasp the housing and lift the product carefully out of the packaging. Avoid impact.

**NOTE:** *Risk of damage to electronic components.*

Use ESD protective equipment when mounting.

#### 4.2 Connect electrical parts

##### **ADDITIONAL FOR AC-FANS**

**DANGER:** *Do not touch. Risk of fatal injury from electrical current*

Ensure that the electrical lines are de-energized  
Secure the operating voltage against switching on again. Never work on parts that are energized. Only allow skilled electricians to work on the product

**DANGER:** *Compliance with the electrical installation regulations*

Observe the connection regulations that are valid in your country. (e.g. fusing, GFCI)

**CAUTION:** *Electrical voltage - The product is a built-in component and has no switch for disconnecting power.*

Only connect the product to current circuits that can be switched off by a switch (all poles disconnected). When working on the product, secure the system/machine in which the product is installed against switching on again.

##### **NOTE:**

Electromagnetic compatibility (EMC) may affect the system integration of the product due to interaction. Ensure the electromagnetic compatibility of the entire system.

##### **ADDITIONAL FOR AC-FANS**

##### **Ground fault interrupter GFI**

Only current-sensitive GFIs (type B) are permissible. Personal protection is not possible with GFIs when the product is in operation (see also frequency converters).

#### 4.3 Requirements:

- Before connecting the product, ensure that the supply voltage corresponds with the product voltage.

- Check whether the data on the nameplate corresponds with the interface data.
- Only use cables that are designed for the current on the nameplate and the corresponding ambient conditions.
- Ensure that the electrical interface data is adequately protected (mechanical).

Colour	Function
Wire „red“	VCC
Wire „black“	GND

#### 4.4 Check connections

**DC-fans** ≤ 60V are products of Protection Class III and must be operated with safety extra-low voltage.

**AC-Fans** are products of Protection Class I and must be reliably earthed.

#### 4.5 Connect product

Check the product for visible damage and the operability of protective equipment before switching on. If damage is visible, do not start the product.

#### 5. FAULTS, POSSIBLE CAUSES AND REMEDIES

Replace your product by a new one, do not repair it.

#### ***DANGER: Electrical voltage at motor***

Wait five minutes after the voltage (all poles) has been switched off before opening the product.

Fault/Error	Possible cause	Possible remedial action
Motor is not turning	Mechanical blocking	Switch off, deenergize and eliminate mechanical blocking
	Main voltage error	Check mains voltage, reconnect voltage supply
	Connection error	Rectify connection, see pin connection
	Motor too hot	Allow motor to cool / identify cause of error
	Motor winding interrupted	Exchange product.
	Ambient temperature too high	Reduce ambient temperature, if possible
Impeller out of true	Unbalance of rotating parts	Clean product, if still unbalanced after cleaning, exchange

#### Technical safety Inspection

Require to check	How to check	Frequency
Protection against accidental contact / Protective clothing	Visual Inspection	Min. half a year.
Check product for damage		
Fixation of product		
Fixation of wires		
Insulation of wires		
Check impeller for wear/ sediments/ corrosion		

## 6. **COMPLIANCE**

The product bears the CE mark.

The CE mark is affixed to adequately sized nameplates.

Within the meaning of the **EMC Guideline 2014/30/EU** this document is intended as:

- Mounting instructions/operating manual as per Art. 18, Paragraph (1)
- Installation instructions as per Art. 4 - Operating manual as per Art. 9, Paragraph (3)
- Instructions for use/operating manual as per Art. 18, Paragraph (3)
- Maintenance instructions as per Art.4; Art. 18, Paragraph (1)

Within the meaning of Directive **2014/35/EU - electrical equipment designed for use within certain voltage limits** this document is intended as:

- Instructions for use/operating manual as per Art. 6, Paragraph (7); Art. 8 Paragraph (4)

Within the meaning of the Directive **2006/42/EU Machine Guideline**, this document is intended as

- Mounting instructions as per Art. 13

Errors and Omissions excepted

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