Operating manual

4656 EZU



Product type, manufacturing date (calendar week/year of construction) and if required, conformity mark can be found on the nameplate on the product.
Please provide us with the contents of the nameplate when making enquiries about the product.

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Original operating manual

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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.

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.

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.

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.

When working at the product, observe the following:

Do not make any changes to the product.



WARNING
Impermissible high load

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

Electrical voltage and current



DANGER
Electrical voltage

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



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

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

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.

Electromagnetic radiation

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

Ensure the electromagnetic compatibility of the entire system.

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.

WARNING
Rotating fan



Long hair, loose-fitting garments and jewellery can be caught and pulled into the product. Risk of injury.
Do not wear loose-fitting garments or jewellery when working on moving parts.
Protect long hair by wearing a hair net.



CAUTION
High risk of fire spreading

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

Hot surface



CAUTION
High temperature at motor housing.
Risk of burns

Provide adequate protection against accidental contact.

Transport

Only transport the product in its original packaging. Secure during transport.
The vibration values, temperature and climate ranges should not be exceeded during transport.

Storage

Store the product in a dry and clean environment that is well protected. Ensure that the storage temperature is adhered to,*see Chapter 3, Technical Data.*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.

Cleaning



NOTE
Product damaged during cleaning

Do not clean the product using a water jet or pressure washer. Do not put any pressure on the rotor. Do not use cleaning agents containing acids, caustic solutions or solvents.

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, *see Chapter 3, Technical Data.*

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

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 prouct as a safety component or for performing safety-relevant functions.
- Operating in medical devices with life-sustaining or life-saving function.
- Operating in non-stationary systems, e.g. railway vehicles, aircraft and spacecraft.
- 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.

Contact ebm-papst if you have specific queries regarding the product.

3 TECHNICAL DATA

Drawing, see annex

Technical description

Airflow direction	Air outlet over flange	
Rotational direction looking at rotor	clockwise	
Frequency	50 Hz	60 Hz
Nominal voltage	230,0 V	230,0 V
Current consumption	115 mA	105 mA
Power consumption	19,0 W	18,0 W
Nominal voltage		
Current consumption		
Power consumption		
Speed	2.600 1/min	2.950 1/min
Max. free-air flow	124,0 m3/h	142,0 m3/h
Weight	0,380 kg	
Protection class	I	

The product is for the use in partial sheltered rooms or open, roofed areas. Directly exposure to water is allowed in so far as this doesn´t prevent the normal operation. Saline ambient conditions must be avoid.

Pollution degree 3 (according DIN EN 60664-1)
It occurs conductive pollution or dry non-conductive pollution occurs that becomes conductive due to condensation.

Ambient conditions

Permitted ambient temperature		
Transport and storage	**Operation**	
-40 ℃ ... 80 ℃	50 Hz	60 Hz
	-40 ℃ ... 65 ℃	-40 ℃ ... 70 ℃

Vibration and shock load

At stationary operation:

sinus vibration	1,0 g; 5 - 500 Hz; 3 x 1 sweep (Resonance search run)
Noise	0,5 m2/s3, 10 - 50 Hz; +12 dB/oct f. 5 - 10 Hz; -12 dB/oct f. 50 - 100 Hz; 3 x 30 min
Repetitive shock	Half sine; 5 g, 11 ms; 6 x 100 shocks

Transport and storage:

Noise	2,0 m2/s3, 5 - 20 Hz; -3 dB/oct f. 20 - 500 Hz; 3 x 30 min
Thrusts	Half sine; 18 g, 6 ms; 6 x 100 shocks

Do not operate your product in the resonance range.

4 CONNECTION AND COMMISSIONING

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.
Wear safety boots and cut-resistant gloves.

Connect electrical parts

Connect to the mains after installation.



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.

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).

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).

Refer to the nameplate for pin connection.



	Colour	Operation
Wire 1	black	L
Wire 2	black	N

Check connections

NOTE
AC-fans are products of Protection Class I and must be reliably earthed.

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 rotating	Mechanical blocking	Switch off, de-energize and eliminate mechanical blocking.
	Mains voltage fault	Check mains voltage, re-connect voltage supply.
	Connection faulty	Rectify connection, see pin connection.
	Motor is too hot	Allow motor to cool / identify cause of fault.
	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 product.

In case of further faults, contact ebm-papst.

Technical safety inspection

What requires checking?	How to check?	Frequency
Protection against accidental contact/ protective clothing	Visual inspection	min. 1/2 yearly
Check product for damage	Visual inspection	min. 1/2 yearly
Fixation of product	Visual inspection	min. 1/2 yearly
Fixation of wires	Visual inspection	min. 1/2 yearly
Fixation of protective earth connection	Visual inspection	min. 1/2 yearly
Insulation of wires	Visual inspection	min. 1/2 yearly
Check impeller for wear/sediments/ corrosion	Visual inspection	min. 1/2 yearly

6 APPROVALS

The product bears the CE mark.

The CE mark is affixed to adequately sized nameplates.

Within the meaning of the EMC Guideline 2004/108/EU this document is intended as:

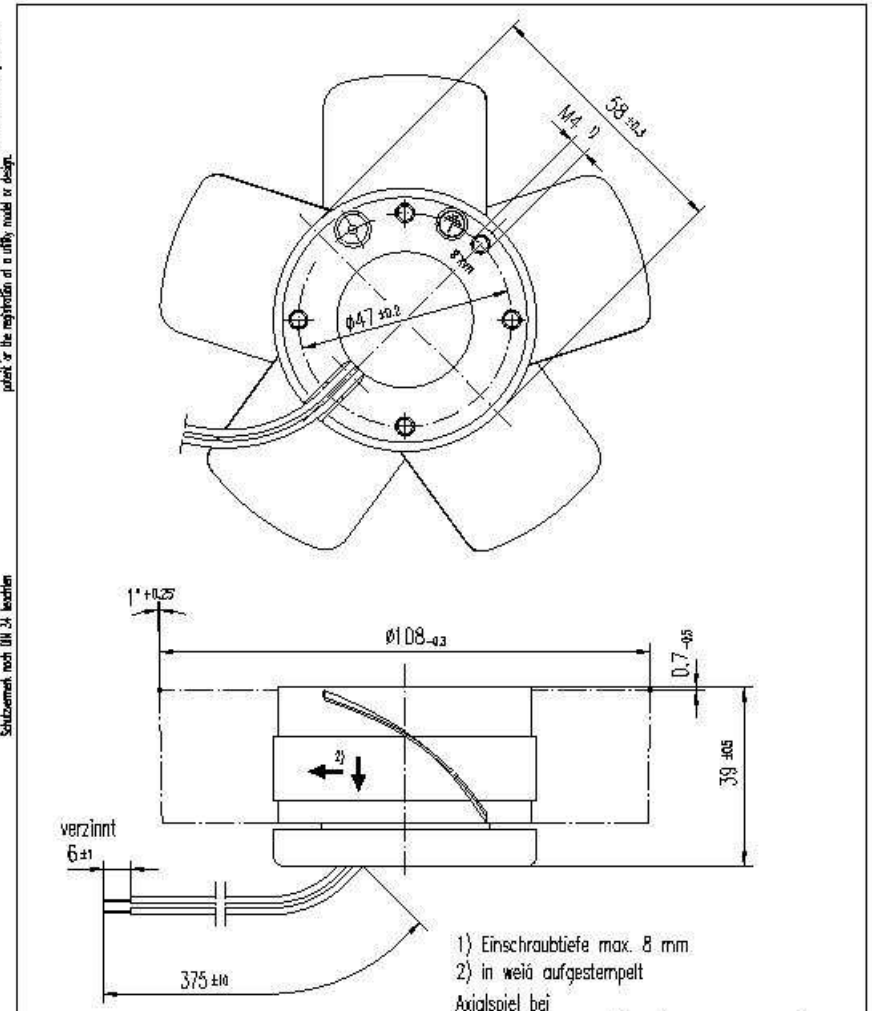
- Mounting instructions as per Art. 9, Paragraph (3)Installation instructions as per Art. 3
- Operating manual as per Art. 9, Paragraph (3)
- Instructions for use as per Art. 8, Paragraph (2); Art. 9, Paragraph (5)
- Maintenance instructions as per Art.3; Art.9, Paragraph (3)

Usage restrictions for residential areas as per Art.9, Paragraph (4)
Accompanying documents as per Annex V, Cl. 3

Within the meaning of Directive 2006/95/EU - use of electrical equipment within specific voltage limits - this document is intended
- Instructions for use Art. 10, Paragraph 1

Within the meaning of the Directive 2006/42/EU Machine Guideline, this document is intended as
- Mounting instructions as per Art. 13, Paragraph 1b

The information in this document and in the specification applies to mounting, installation, operation, use and maintenance.



1) Einschraubtiefe max. 8 mm
2) in weiß aufgestempelt

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 – 0.6

Schutzvermerk nach DIN 34 beachten

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				Datum	Name	Artikel: Axiall?fter — Maßstab 1:1
			Erstellt	01.09.95	Kieninger	
			Gepr?ft	29.04.96	Wrobel G.	
a	Erg?nzung	25.03.97	Koletzki M.	PAPST		Zchg.-Nr. 924 4014 942 — Blatt 2
Index	Znd.-Nr.	Datum	Ge?ndert von	PAPST-MOTOREN GmbH & Co KG D-78112 St.Georgen Germany		
Zur Verwendung im Verteiler freigegeben von Koletzki M. am 25.03.97						Ers.f.Zchg.: — K:\924\4014\