

Duct fans

ERK 100

ERK 100 T

ERK 100 S

ERK 100 ST

ERK 125

ERK 125 T

ERK 150

ERK 160

ERK 200



Mounting and
operating instructions



ERK ...



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Additional information



Go directly to the product with a smartphone. In the Internet under maico-ventilatoren.com.

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1. Scope of delivery

- ERK duct fan including mounting foot (pre-installed)
- Accessories bag containing fastening material (4 fastening screws and 4 dowels) in the terminal box
- Mounting and operating instructions

2. General notes



Read these installation and operating instructions carefully before using the fan for the first time. Follow the instructions. Keep these instructions safe for use later on.

Installation staff

Installation may only be carried out by specialists who have the necessary knowledge and experience in ventilation engineering. Only qualified electricians are permitted to make the electrical connections. They are trained in electrical engineering and are aware of the risks and consequences of an electric shock.

Symbols used



DANGER

Direct risk of danger. Failure to observe will result in severe injury or death.



CAUTION

Possibly dangerous situation which could result in minor to moderate injuries.

NOTICE

Possible situation which could cause damage to the product or its surroundings.



INFO symbol indicating important information and tips.

- Bullet point for information on the corresponding subject.
- 1. Instructions. Follow the instructions given in the order stated.

3. Product information

3.1 Equipment overview, Fig. A

- 1 Fan housing with motor and impeller
- 2 Connection socket
- 3 Terminal box
- 4 Terminal box cover
- 5 Mounting foot
- 6 Clamp with screw and retaining ring
- P Air flow direction arrow
- T Rating plate

3.2 Product description

Models

- **ERK ...**: Duct fans with guide vanes, units with nominal sizes of DN 100, DN 125, DN 150, DN 160 or DN 200.
- **ERK 100 T, ERK 125 T**: like ERK ..., also with follow-up relay (timer), adjustable from 3 to 15 minutes. Units with nominal size of DN 100 or DN 125.
- **ERK 100 S, ERK 100 ST**: Duct fans with guide vanes, powerful model. ST model with follow-up relay (timer), adjustable from 3 to 15 minutes. Units with nominal size DN 100.

Product features

- Fans for air extraction or ventilation, depending on installation position (→ air flow direction arrow).
- For the supply of small up to medium air volumes.
- With inlet and outlet side connection couplings for direct installation in the ventilation ducts.
- With diagonal impeller and downstream stator. Type ERK 100 with axial impeller.
- Asynchronous motor, with 1, 2 or 3 speeds depending on unit type.
 - 1 level: ERK 100, ERK 100 T
 - 2 levels: ERK 100 S, ERK 100 ST, ERK 125, ERK 125 T, ERK 150, ERK 160
 - 3 levels: ERK 200

Alternatively speed can be controlled using a speed controller (phase angle) or step transformer.



The high performance level should be connected when using speed controllers/transformers.



The speed of timer versions ERK 100 T, ERK 100 ST and ERK 125 T cannot be controlled.

- The unit is switched on or off with an optional switch.
- ERK .. T: Unit overrun time can be adjusted. Setting range is 3...15 minutes. After being switched off with the optional switch, the fan continues to run for the set time and then switches off automatically.

Thermal overload protection

The fan motor has thermal protection (temperature sensor in the motor winding). The overload protection automatically switches the fan off in the event of overheating.

The fan must remain switched off long enough for the motor and temperature limiter to cool down, before starting the fan back up. Depending on size and temperature conditions, it may take **up to 10 minutes** to cool down. Only then can the unit be switched back on.

3.3 Intended use

- ERK are duct fans for usage similar to that found in domestic properties.
- They can be installed in any position.
- The fans are used for air extraction or ventilation, for example in productions sites, workplace applications, storage rooms, labs, workshops, rest rooms or rooms without windows.
- IP X4 type protection is only satisfied when installed in ventilation ducts, on the inlet and outlet sides with at least 1 m of duct.
- **They can only be operated** with an ERK fan installed directly in the duct. Folded spiral-seam ducts of a nominal size appropriate to the unit are permitted for the duct.
- The ERK fan must be permanently installed and the electrical supply cable permanently laid.
- A mounting foot [5] should be used for installation. The mounting location must demonstrate sufficient load-bearing capacity.

3.4 Predictable misuse

Maico is not liable for damages caused by use contrary to the intended purpose. **Under no circumstances should the unit be used:**

- for conveying steam-saturated air or greasy air,
- for conveying solid particles which may stick to the fan.,
- close to flammable materials, liquids or gases,
- for conveying chemicals, aggressive gases or vapours,
- in explosive atmospheres,
- outdoors,
- with a free air entry or exit, if there is no protection against accidental contact with the impeller
in accordance with EN ISO 13857.



IP X4 type protection is **not** satisfied when the ventilation duct on the air outlet side points straight up and there is no duct bend to prevent the supply of moisture.

4. Technical data

For technical data, refer to the rating plate.

Degree of protection	IP X4
Temperature class	B
Weight	1.2 to 4.5 kg, depending on unit variant
Temperature of air medium	up to 40 °C



Information

- Dimensions and characteristic curves → Internet, → catalogue.
- Internet → maico-ventilatoren.com or using the QR code on page 2.

5. Safety instructions

5.1 General

- Read these operating instructions carefully before mounting and commissioning.
- Assembly and electrical connection may only be undertaken by trained specialists in accordance with Chapter 2.
- The unit may only be operated using the voltage and frequency shown on the rating plate.
- The degree of protection stated on the rating plate is only guaranteed if installation is undertaken correctly and if the cables are correctly guided into the terminal box.
- Only connect unit to permanently wired electrical installations with NYM-O or NYM-J, (3 x 1.5 mm²) cables. Additionally, a mains isolation device with contact openings of at least 3 mm at each pole must be installed.
- Only operate the unit when it is completely installed.
- Ensure that foreign bodies cannot be sucked into the unit and duct.

- Never operate the device without a protective grille (Maico SGR) with a free inlet/outlet. The impeller must have protection against accidental contact (EN ISO 13857).
- Ensure a sufficient supply air intake.
- Modifications and alterations to the unit are not permitted and release the manufacturer from any guarantee and liability.

5.2 Safe and correct practices during operation



Danger of injury from objects in the impeller. Do not insert any objects in the unit.



Danger of injury from rotating impeller. Do not get too close to the unit, to avoid hair, clothing or jewellery being drawn into the unit.

- This fan unit can be used by children aged 8 and above, and by people with reduced physical, sensory or mental capabilities or by persons with insufficient experience or knowledge provided they are supervised by a person responsible for their safety, or they have been instructed about the safe operation of the unit and can understand the resulting risks thereof. Children must not play with the unit. Cleaning and maintenance must not be carried out by children without supervision.

6. Transportation, storage

6.1 Transport

Information

- Use appropriate means of transport for transport purposes.
- Maico accepts no indemnification or warranty claims in the event of improper transport.

6.2 Storage

- Only store fan horizontally in a suitable, dry room: ambient temperature - 10 to + 60 °C.
- Before installing, check that the motor bearing is working properly.
- Maico accepts no liability for corrosion damage caused by improper storage, e.g. storage in a damp room.

7. Installation preparations

Information

- For installation, we recommend flexible fixing cuffs (type ELR). These prevent the transmission of vibrations to the duct system.
- If duct system is already in place, cut through folded spiral-seam duct at installation location. Take account of spacing for fixing cuffs.
- Dispose of packaging material in accordance with Chapter 12.
- Lay a permanent power cable to the installation location.
- With free inlet, fit a SGR type protective grille appropriate for the unit.
- Always note the relevant specifications for electrical installations and when fitting equipment. In Germany, observe DIN VDE 0100 and the corresponding parts in particular.

8. Mounting

8.1 Installing fan



CAUTION

Danger from incorrect installation location or incorrect attachment.

1. Only fit in places with sufficient load-bearing capacity.
2. If necessary, the customer should provide fastening material suitable for the installation location.

1. Remove pre-installed mounting foot [5] by opening both clamps and taking out fan housing [1] and connection sockets [2].
2. Fit mounting foot [5] at installation location using appropriate fastening material.

- i** Make sure that there is free access to terminal box [3].
3. Slide folded spiral-seam ducts suitable for the diameter of the connection sockets onto the two connection sockets on the inlet and outlet sides. If necessary, first attach flexible fixing cuffs onto connection sockets.
4. Insert fan housing and two connection sockets in grooves of the two clamps. Close the clamps and screw down.

i Ensure that the components do not twist and are inserted correctly in the clamp grooves in order to prevent leakages.

5. Fit suitable insulation, sound-deadening and installation material.

8.2 Electrical connection



DANGER

Danger to life from electric shock.

Prior to accessing the connection terminals, switch off all supply circuits. Switch off mains fuse, secure against being accidentally switched back on and position a visible warning sign.

NOTICE Risk of damage to unit in the event of short-circuits.

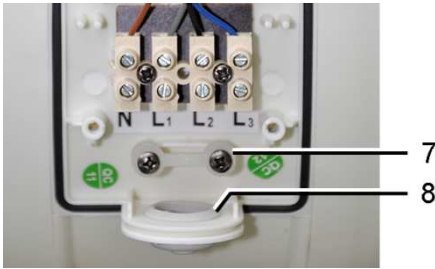
Insulate any unnecessary cable cores.



Information

- **ERK fans are not approved for operation with frequency converters.**
- Speed can be controlled using a speed controller (phase angle) or step transformer. For speed controller → accessories online or valid Maico catalogue.
- Units with ERK 100 T, ERK 100 ST and ERK 125 T timers have an extra PCB with potentiometer in the terminal box. This can be used to set the follow-up relay (timer) from 3 to 15 minutes. The speed of timer units cannot be controlled.
- The high performance level should be connected when using speed controllers/transformers.

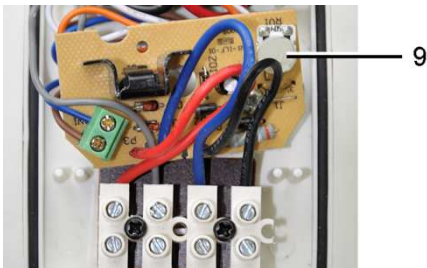
1. Switch off mains fuse and prevent from being started up again. Attach warning sign.
2. Remove terminal box cover [4] and accessories bag.



NOTICE **Danger of short-circuits and damage to the unit. Water/dampness may penetrate the terminal box if the power cable is introduced incorrectly (leaking) or if the cable grommet is not fitted correctly.**

Pierce cable grommet such that it can fully surround the power cable and makes close contact in the terminal box.

3. Pierce cable grommet [8] in terminal box with a nozzle pin.
4. Guide the power cable into the terminal box such that the cable grommet fits around the cable sheathing completely. If necessary, seal the cable grommet on-site.
5. Wire fan to the terminal block according to the wiring diagram (→ chapter 13). Note the screws' tightening torque of 0.7 Nm.
6. Secure power cable with tension relief [7] to ensure that the power cable is seated firmly.



7. On ERK .. T units, set the unit overrun time with potentiometer [9] (setting range 3 to 15 minutes).
8. Fit optional on/off switch.
9. Connect other optional accessory components (→ chapters 8.3 and 8.4).

NOTICE **Unit damage due to moisture in the event of improperly attached terminal box cover.**

1. The terminal box cover sealing must be flush all the way round the terminal box.
2. Tighten screws to a tightening torque of 1.0 Nm.

10. Fit terminal box cover.

8.3 Speed control with speed controller

ERK units (other than ERK .. T units) can be controlled in an infinitely variable manner using a speed controller appropriate to the unit type (→ online, → catalogue).



The technology used in the phase angle controller may cause humming noises.

NOTICE **The fan will stop and suffer functional problems if the output voltage on the speed controller is too low.**

1. Observe information in the speed controller operating instructions.
2. Always set the minimum speed on the speed controller such that the fan motor starts up again after power failure.

8.4 Operation with step transformer

The speed of ERK units (other than ERK .. T) can be set gradually with a 5-step transformer (type TR or TRE) appropriate to the unit type (→ online, → catalogue).

ERK unit:

- 1 level: ERK 100, ERK 100 T
- 2 levels: ERK 100 S, ERK 100 ST, ERK 125, ERK 125 T, ERK 150, ERK 160
- 3 levels: ERK 200

8.5 Commissioning

1. Check that all screw connections are tight.
2. Check air channel for dirt and clean if necessary.
3. Check that connection data matches technical data on the unit (rating plate → unit → instructions envelope).
4. Remove protection against switching back on and switch on mains fuse.
5. Run function test. Check that the impeller runs quietly and ensure this if necessary. It is also important that the air can flow unhindered.
6. Switch off unit.

9. Maintenance

The unit is maintenance-free.

10. Fault rectification

- Call on the services of a trained electrician any time there is a fault.
- Repairs should only be carried out by a trained electrician.



DANGER

Danger to life from electric shock.

Prior to accessing the connection terminals, switch off all supply circuits. Switch off the mains fuse, secure against being accidentally switched back on and position a visible warning sign.

Fault	Cause, measure
Fan does not switch on.	No mains voltage. Check whether the mains fuse has failed. Switch on if necessary.
Motor's thermal overload protection switches the fan off.	Motor too hot. Leave the unit switched off until the motor and the temperature limiter cool down. Cool-down time can be up to 10 minutes . Only then, switch the unit back on.
Fan does not switch on.	Impeller blocked. Repairs may only be carried out by a trained specialist: Check impeller and clean if necessary.
Deposits on the impeller and in the housing caused by dust in the air.	Call on the services of a trained electrician. Install air filter in the duct system. Under no circumstances should the inside of the unit be cleaned with water or a high-pressure cleaner.
Impeller not turning.	Switch off unit. Ensure that the impeller is not blocked by foreign bodies.



If the fault still continues or occurs again, disconnect the fan from the power supply at all poles.

Let a certified electrician determine the cause of the fault and eliminate it.

11. Dismantling

i Dismantling may only be undertaken by a trained electrician (→ chapter 2).



DANGER

Danger to life from electric shock.

Prior to accessing the connection terminals, switch off all supply circuits. Switch off the mains fuse, secure against being accidentally switched back on and position a visible warning sign.

1. Switch off mains fuse, secure and fit warning sign.
2. Remove folded spiral-seam ducts from fan.
3. Remove the terminal box cover.
4. Remove all cables.
5. Remove fan.

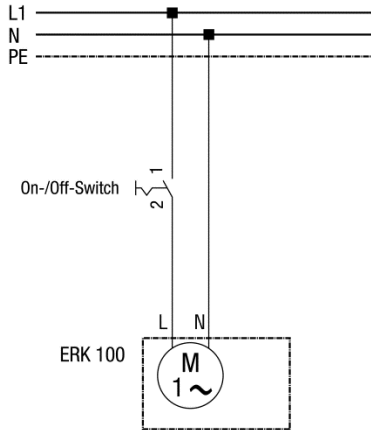
12. Disposal

i **Do not dispose of in domestic waste.** The unit contains in part materials that can be recycled and in part substances that should not end up in the domestic waste.

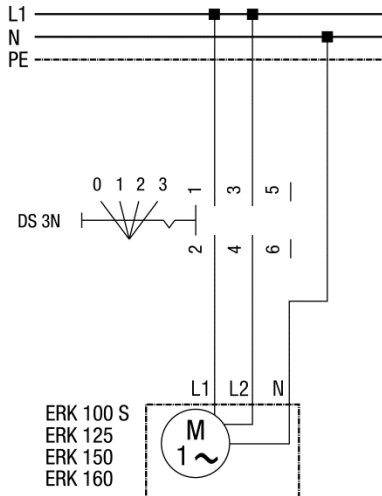
Dispose of the unit once it has reached the end of its service life according to the regulations valid where you are.

13. Wiring diagrams

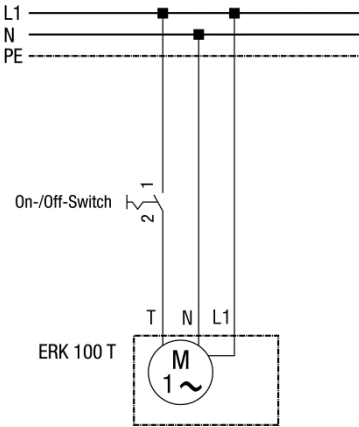
ERK 100



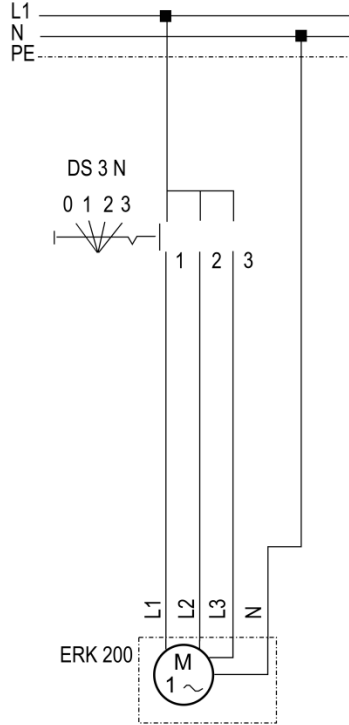
ERK 100 S, ERK 125, ERK 150, ERK 160



ERK 100 T



ERK 200



ERK 100 ST, ERK 125 T

